THE RAILWAY GAZETTE
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An index to the eighty-first volume of THE RAILWAY GAZETTE *covering the issues from July 7 to December 29, 1944, has been prepared, and is now available free of charge on application to the Publisher*

CALENDARS FOR 1945

A limited number of RAILWAY GAZETTE *Office Calendars for 1945 is now ready and may be had on application, price 1d. each*

GOODS FOR EXPORT

The fact that goods made of raw materials in short supply owing to war conditions are advertised in this paper should not be taken as indicating that they are available for export

POSTING "THE RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE *possesses the necessary permit and facilities for such dispatch.*

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas

TO CALLERS AND TELEPHONERS

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The office is closed on Saturdays

ANSWERS TO ENQUIRIES

By reason of staff shortage due to enlistment, we regret that it is no longer possible for us to answer enquiries involving research, or to supply dates when articles appeared in back numbers, either by telephone or by letter

ERRORS, PAPER, AND PRINTING

Owing to shortage of staff and altered printing arrangements due to the war, and less time available for proof reading, we ask our readers' indulgence for typographical and other errors they may observe from time to time, also for poorer paper and printing compared with pre-war standards

Taxation, Enterprise, and Employment

THE effect of the present crippling level of taxation on industrial enterprises, and also the need to convert the Board of Trade into a more genuinely active and energetic department, were dealt with by Mr. J. S. Dodd, M.P., President of the Association of Chambers of Commerce, recently. He pointed out that it was useless to expect industry to reorganise, to reconstruct, and to expand when financial and taxation policies were restrictive. The Chancellor of the Exchequer had said that encouragement was to be given to industry in the forthcoming Budget, but it would have to be on the widest possible scale, and there should be a complete reorientation of ideas of the manner in which taxation from industry was raised. On the present basis of taxation there was no incentive for investment of "risk" capital, and without it private enterprise could not function and could not provide employment. He said that in the United States the notion was held that we had tied ourselves to a policy of bilateralism, cartels, state enterprise, and of import and export restriction and control. Although we might be compelled to follow some of these policies for a time, fundamentally they did not provide a basis for a long-term policy. He thought that the whole status of the Board of Trade should be raised, so that it might become a real department of trade and commerce, recognised by all as a key Ministry and with its President enjoying authority similar to that of a member of the War Cabinet.

Railway Tribunal of Eire Dissolved

The Railway Tribunal of Eire, which was constituted 20 years ago, was dissolved on December 21 last, at the Four Courts, Dublin, when tributes were paid to the work of Judge D. O'Brien, who has been the presiding judge since the formation of the Tribunal. Regret was expressed at the passing of the Tribunal, and good wishes were offered to the Judge in his retirement. Judge O'Brien recalled that, since the Court of the Railway Tribunal was established in 1924, a massive programme had been brought to completion. All the railways operating wholly within the State of Eire had been amalgamated into one company. Classification of merchandise for carriage by rail had been determined; standard charges for the carriage of merchandise were settled; conditions of carriage of merchandise were also settled; and rules were provided for the procedure of the Court. All this work was apart from that of the public sittings for the trial of applications by suitors to the Court. Judge O'Brien said that he had been assisted ably by Mr. John R. Kerr and Mr. Henry Mangan until their retirement in 1931. He also paid tribute to Messrs. John O'Brien and J. J. Boylan, each of whom had been Registrar of the Court for a period of about 10 years. In conclusion, he referred to the coming into being of the new Irish Transport Company (Córas Iompair Eireann), under the provisions of the Transport (No. 2) Act, 1944. He hoped that the new company would "secure for the users of road and rail traffic a close approach to perfection of transport."

Private Operation of Mexican Railways?

An interesting situation has arisen in Mexico as a result of an offer made by a number of Mexican business men to the Mexican Government. It is that they are prepared to lend $200,000,000 or more to the Government, for the post-war rehabilitation of the Mexican railway system, on condition that the Government is willing to turn the operation of the system over to private enterprise. This offer was made public by Senor Alejandro Noye, Chairman of the Confederation of the National Chambers of Commerce of Mexico, and a Mexican delegate to the International Business Conference, when speaking in New York State on November 13 last. The first plan for reconditioning and developing the railways was drawn up last summer, and has the support of the President of Mexico, Senor Avila Camacho, but is opposed by the labour unions. It is proposed that the Mexican Government should be called on to form the National Railways of Mexico into a separate railway company freed from Government control. Its affairs would be managed by a board of directors consisting of eight members, five appointed by the business interests advancing the money, two by the labour unions, and one by the Government.

A Link with Early C.P.R. Days

Mr. W. S. Stout, President of the Canadian Pacific Express Company, whose death we recorded last week, represented one of the last living links with the early days of the Canadian Pacific Railway and its construction. It was the late Sir William Van Horne, the first Chairman and the second President of the Canadian Pacific, who realised the importance of "express" traffic and determined to develop it in connection with the railway; and during the 1880's he acquired the then

Dominion Express Company, an all-Canadian concern, formed a few years previously, which operated a fast horse-transport service for light and valuable parcels, and appointed Stout, then a very young man, as Superintendent. This company, of which Stout eventually became President, later was designated the Canadian Pacific Express Company. Stout co-operated with Van Horne in the development of express business, and, realising the value of creating potential traffic in districts which the C.P.R. later was to serve, operated a horse express service many miles in advance of the construction of the line. Today the Canadian Pacific Express Company serves the public on a large scale, speeding delivery of light and valuable consignments by passenger train, ocean liner, and aeroplane wherever the Canadian Pacific operates or connects.

Overseas Railway Traffics

The British-owned Argentine railways have opened the second half of their financial year with a continuance of increased traffic receipts, and substantial gains are now recorded in the aggregates of all the main undertakings. Among Brazilian railways the Leopoldina concluded the year 1944 with aggregate receipts of £2,451,601, an increase of £528,885 on the previous year; the Great Western of Brazil, with a total of £1,192,900, showed an advance of £289,100 on the year 1943, but registered a small decline in its first week of the new year. On the Antofagasta, Chile & Bolivia Railway, the year closed with a small decline of £16,371 at £1,522,940, and for the first week of this year traffic receipts were down by £3,400.

	No. of week	Weekly traffics £	Inc. or dec. £	Aggregate traffic £	Inc. or dec. £
Buenos Ayres & Pacific* ...	27th	146,933	+ 14,933	3,636,066	+ 673,400
Buenos Ayres Great Southern*	27th	298,333	+ 76,600	5,433,733	+ 440,467
Buenos Ayres Western* ...	27th	75,066	+ 16,400	2,005,666	+ 409,733
Central Argentine*	27th	204,573	+ 29,007	5,118,150	+ 727,457
Canadian Pacific	1st	904,600	— 56,000	904,600	— 56,000

* Pesos converted at 15 to £

The Nitrate Railways finished 1944 with aggregate receipts of £185,304, which was an improvement of £24,612 over 1943. Canadian Pacific gross earnings amount to £63,774,200, an increase of £4,352,600.

The Luso-Brazilian Council

In our last week's issue we gave some details of the Hispanic Council, the chief aim of which is to promote closer relationship between the British Empire and the Spanish-speaking nations. The Luso-Brazilian Council is a similar non-political and non-trading entity, the chief aim of which is to promote closer relations between the British Empire and the Portuguese-speaking nations. It was brought into being by some industrialists in the belief that Great Britain, in the furtherance of her relations with Portugal and Brazil, should give more evidence of her interest in these countries. The Portuguese language is spoken by over 60 million people, three-quarters of whom inhabit Brazil. That country provides a vast market for Great Britain's export trade in the post-war period, and the Luso-Brazilian Council believes it to be imperative that more opportunity should be provided for learning Portuguese. The Council endeavours to keep prominently before the Government and the general public the importance to Great Britain of her trade relations with the Portuguese and Brazilian markets and is willing to co-operate with all bodies concerned with those territories. Lord Davidson, the President of the Council, has extended an invitation to every firm with an interest in trade with the Portuguese-speaking nations to take a financial and personal part, by membership or otherwise, in furthering the work and objects of the council.

Irish Safety Record Broken

Sympathy will be felt for the managements of the Belfast & County Down and former Great Southern Railways systems in seeing their long record of safe working broken by recent accidents. That which occurred on the former line on January 10, 1945, when a rail motor train ran into a workman's train near Ballymacarett Junction, resulted in the high death roll of 19; the other collision took place on December 20, 1944, when the night mail to Cork ran into a mixed goods and livestock train near Straboe and one passenger, a postal official on duty, was killed. For many years the railways in Ireland generally have enjoyed an enviable immunity from accidents resulting in serious harm to passengers, and it is particularly unfortunate that the Ballymacarett collision should have had such regrettable consequences, no doubt as a result of the crowded condition of the standing train. When Mr. H. J. Guthrie, the present Signal & Telegraph Superintendent of the G.S.R. system, read his paper on signalling in Eire to the Institution of Railway Signal Engineers on October 14, 1936, an abridgement of which appeared in our columns the same week, he was able to point to the fact that no passenger had been killed in a train accident properly so called, on the lines covered by his remarks for something like 30 years and we believe that this condition still obtained when the Straboe mishap took place.

The Falling Weight Test for Rails

Manufacturers of steel rails in countries other than Great Britain sometimes express surprise that the British Standard rail specifications call for falling weight tests which, in general, are considerably more severe than those enforced elsewhere. In some countries there has been pressure to abandon this test altogether, as being unrepresentative of any stress to which the rail is subject in service, and to substitute a static bending test by a heavy load applied gradually. It is true that there is very little evidence on which to justify the demand that, say, a 5-ft. length of 95 lb. per yd. bull-head rail, stood on supports 3 ft. 6 in. apart, shall sustain without fracture the impact of a ton weight falling successively from heights of 7 and 20 ft. Doubtless it is correct, also, to claim that no impacts suffered by a rail in service, from locomotive hammer-blow, flats on wheels, or other causes, approach in severity such impacts as these. Yet the B.S. falling weight test probably has had no small value as a rail insurance. With all allowance for different methods of compiling rail failure statistics, for many years past the frequency of rail failures in Great Britain has been less than in any country whose railways carry comparable traffic, and in part at least the severity of the British falling-weight test may provide an explanation. In effect it has imposed a restraint on extremes of composition and laxity in manufacture, and so has provided a margin of rail reliability sufficient to offset the harmful effect of many of the minor defects to which rails are subject, and to give greater latitude in such operations as welding or the application of heat-treatments. Nevertheless the subject is one which deserves more detailed investigation than it has yet received.

Spain Thinking of Tourist Traffic

Now that the war in Europe is thought to be nearing its end, some countries are considering how to revive the once lucrative tourist traffic, practically non-existent, between two or three of them, since hostilities began. No doubt many will be glad to resume the travel habit and find some relief from the worry of the war years in journeying beyond the frontiers of their own land, provided this can be done at something like reasonable cost and without too many annoyances in the way of passport restrictions and other irritating formalities. These countries which have escaped all damage in the war find their historical monuments and cities an unimpaired attraction. The press in Spain is dwelling on the fortunate position the Iberian peninsula enjoys in this respect, and the importance of doing everything possible to encourage visitors as soon as peace in Europe is assured. It is considered that in the past Spain did not do all it might have done to encourage the visitor, and that if the advantages that its neutrality has procured for it are adequately to be turned to account, a business-like policy should be adopted and suitable plans laid without delay.

The Largest U.S.A. Railways

Recently the Interstate Commerce Commission of the United States published a comparative statement based on consolidated statistical particulars furnished, under compulsion, by every railway with an annual operating revenue of $10 million or over. The most interesting feature of this publication is the revelation that it gives of the size and complex organisation of the leading American systems. In all, the 34 reporting railways between them control 771 companies. The biggest group, the Pennsylvania, comprises 101 companies with total assets estimated at $4,662 million, although of this total $2,654 million only represents the assets of the Pennsylvania Railroad proper. The New York Central group includes 65 companies, with aggregate assets of $3,259 million; the Southern Pacific group, of 36 companies, reported assets of $2,674 million; the Santa Fe, with 62 companies, $1,830 million; the Baltimore & Ohio, 88 companies, $1,819 million; the Union Pacific, 24 companies, $1,745 million. The Atlantic Coast Line, Chesapeake & Ohio, Illinois Central, and Southern Railways all reported total assets exceeding $1,000 million each. It may be added that several of the biggest lines filed these particulars under protest, partly on the ground that their compilation involved unjustifiable expense and served no useful purpose, but chiefly because the figures tended to be misleading. It was held that the reports should have excluded

figures relating to non-controlled lessor companies, and to non-carrier companies, even though the latter might be controlled to the extent of more than 50 per cent. of their capital stock.

Signalling and the Civil Engineer

The paper read by Mr. F. H. D. Page, O.B.E., M.Inst.C.E., Signal & Telegraph Engineer, G.W.R., before the Institution of Civil Engineers on January 16, had for its purpose to emphasise the close association between civil and signal engineers in providing the best means of securing the safe and efficient operation of trains under the varying conditions, both of an engineering and a traffic kind, met with on our railways today. At one time signalling was largely the direct concern of the civil engineer, aided by the telegraph engineer, whose work, however, touched him but little as a rule, and the earliest papers of an authoritative kind on signal engineering were indeed read before the Institution which Mr. Page addressed, and some 35 years ago the subject, as it affected practice on the G.W.R., was dealt with before that body by one of his predecessors, the late Mr. A. T. Blackall. The signal engineer long has been intimately associated with the civil engineer in the provision of apparatus for operating points and especially facing points, those important elements in the permanent way the secure functioning of which is an indispensable fundamental condition of safe working in the first place and speedy working in the second. Subsequently the application of the track circuit introduced a further point of contact, and the desire of the civil engineer, in evidence of late, to employ at times other than wooden sleepers, has set a problem for the signal engineer in providing an alternative. In other directions also co-operation between the two professions is becoming increasingly called for.

Smoke Prevention

In an address given recently to the Smoke Prevention Association of America, Mr. John Bjorkholm, Superintendent of Motive Power, Chicago, Milwaukee, St. Paul & Pacific Railroad, emphasised that the motive power department is by no means the only department of a railway concerned in minimising the smoke nuisance. Although the operating personnel has control of the conditions which produce smoke or the reverse, purchasing departments decide what fuel shall be purchased, mechanical departments are responsible for the details of locomotive design which should be effective in smoke reduction, and in North America the civil engineering departments are responsible for the design of engine-sheds, in which the disposal of smoke might well be a subject of closer study than hitherto. Another important point stressed by the speaker was that the diesel locomotive is by no means as innocent in this matter as its protagonists often claim; the diesel exhaust gases, especially from the larger diesel units, are not without their nuisance qualities. Past railway accomplishments in smoke prevention have been brought about chiefly by study of locomotive fuels and the best methods of combustion, as well as by instructing engine-crews and encouraging them to play their part. "Any progressive and wide-awake railway managament," Mr. Bjorkholm declared, "realises, for reasons both civic and economic, that the days when an abundance of black smoke escaped from locomotive stacks, powerhouse chimneys, or roundhouse smoke jacks, belong to a careless past, and that proper supervisory and educational efforts to eliminate unnecessary smoke must be a part of modern railroad operation."

Large Metre-Gauge Locomotives for India

Two additions to the stock of the Bombay, Baroda & Central India Railway system are 2-8-2 locomotives for metre-gauge sections for use on trains weighing 400-500 tons on grades of 1 in 55, where the radius of the medium curves is only 358 ft. For such duties, obviously, something quite exceptional for the metre gauge was needed, and great credit is due to W. G. Bagnall Limited, for producing a design capable of working under such onerous conditions. Although the adhesive weight is only 45 tons 4 cwt., the use of four coupled axles enables a fair distribution to be achieved, which should not unduly tax the 60-lb. rails employed. The generous proportions of the machine and the high degree of finish are noteworthy; and the equipment comprised in the various boiler mountings, etc., is very complete. One of the most interesting features is the inclusion of a double-acting duplex Worthington-Simpson pump, in addition to two injectors. Another is the inclusion of a steam reversing gear instead of the usual screw reversing gear which is new to this class of locomotive on Indian metre-gauge railways. It will be noticed that arch tubes are provided for the steel firebox, which should assist greatly in the circulation. We like the large, well-arranged cab, which, with its excellent look-out, should assist materially in commending these fine-looking engines to their crews.

Modern Corridor Coach Design

ONE of the principal British developments in the design of British passenger coaches for long-distance service during the past two decades has been the substitution of end gangways and end doors for the doors previously provided in each compartment, and opposite each compartment on the corridor side. Structurally the coach bodies have benefited by the fact that their sides have been uninterrupted by door frames; in the compartments the draughtiness so often resulting from doors on both sides has been avoided, with a considerable increase in passengers' comfort. The main disadvantage, however, has been that at station stops passengers must make their way, with their luggage, along the length of the corridor, perhaps for some 25 ft. if from a middle compartment, before being able to make their exit, and that until they have done so passengers entering the train are unable to get in. Whereas in the quieter travelling conditions of peacetime this feature of coach construction may not have caused serious difficulties, it has been another matter in crowded wartime travel conditions, and serious congestion has at times been caused in this way. This fact has prompted the new and interesting corridor coach design of the London & North Eastern Railway, which we describe and illustrate on p. 64, and which is to be the future standard for that railway.

In this coach the end doors and gangways have been replaced by two transverse passages nearer the middle of the coach, with doors opposite each, dividing the six first class compartments into three groups of two compartments. As a result, four of the compartments are all adjacent to a pair of doors, and the maximum distance that any passenger has to walk to a door is about 15 ft., from the extreme end compartments; also it is only in the case of the latter that any passenger has to pass another compartment on the way to and from a door. Further, in a train made up in this way, the doors along the length of the train will be more evenly spaced, instead of all being in pairs at the adjacent coach-ends; this will facilitate the distribution of passengers on the platforms, and their task of getting in. Among minor advantages, the two transverse passages in the coach make convenient "sidings" to permit passengers to pass one another in the corridor; also greater privacy is given round the doors of the lavatories, as they are no longer opposite the entrance and exit doors of the coach, where passengers congregate. Other companies have already realised some of the "defects" of the end-door coach arrangement; the G.W.R., for example, provides additional doors along the sides of many of its end-door coaches, both on the corridor and the compartment side, as a compromise between the earlier and the more modern coach arrangement, but this new L.N.E.R. solution of the problem will be watched with interest.

Among other features of the new coach, one is the abandonment of the downward slope of the roof at both ends which has been an invariable feature of L.N.E.R. vestibuled coach design since Great Northern days; the bow end of the coach, with buckeye coupler and Pullman vestibule, however, is retained. The view in the compartments is improved, not only by increasing the window width by 6 in., but also by dropping the lower edge of the window 3 in. With the deep modern first class seating, the view from existing windows is somewhat restricted, and this defect is cured in the new L.N.E.R. design. The oval window to the lavatory is another new feature, so far as concerns the L.N.E.R., and with the coach roof and other features will help to make the first change in the external appearance of standard L.N.E.R. corridor stock that has taken place for many years past.

The Young Entry in Industry

ONE of the problems which will face industry in the years after the war will be the smaller number of young persons available for employment. It is widely recognised that one of the most grievous effects of a war of modern proportions and destructiveness is the loss of a great number of young men, who, in the normal course of events, would have been actively engaged in the trade and commerce of the combatant countries. The effect of the loss of a substantial part of a generation of men was felt keenly by British industry as a result of the war of 1914-18.

Somewhat similar problems, although it is to be hoped that they will not be on so great a scale, no doubt will have to be faced at the conclusion of the present struggle, but in addition industry has to cope with a further disturbing factor. The healthy vigour and expansion of railways, and the many engi-

neering industries associated with transport, depend, in large part, on an influx of young persons on a substantial scale, although it is true that in the years between the wars this intake, for reasons of economic depression, was less than normally is desirable. There is every prospect that over the next five years there will be a very considerable shrinkage in the number of young persons available for industrial employment. In a recent broadcast in the B.B.C. series "Jobs for All," in which several well-known industrialists and trade unionists took part, Mr. E. P. Paxman, Managing Director of Davey Paxman & Co. Ltd., pointed out that in comparison with 3¼ million young persons between the ages of 14 and 18 in 1937, there were but 2¾ million in 1943, and that this figure might be expected to shrink to 2½ million by 1955. He put the number available for industry under eighteen years of age at 3¼ million in 1937, and 2¾ million in 1943, but by reasons of several factors, the number would have shrunk to 1⅝ million in ten years' time. That is to say, in ten years there will be only about half the number of children available to enter industry that there were at the beginning of the present war.

The first of the factors making for this substantial reduction is, of course, the decline of birth rate, and the second is the effect of raising the school-leaving age. The figures are approximate only, and they do not take account of those who in any case would have remained at school until they were sixteen years of age or more, or of those who through illness, or any other cause, would have been prevented from working, but within a quite substantial margin of error the implications of these statistics are of sufficiently grave import to British industry.

How Requisitioned Land & War Works Bill May Affect Railways

THE Requisitioned Land & War Works Bill, recently introduced into Parliament, deals with the complicated questions which are arising out of the use of land for war purposes. It contains a number of miscellaneous provisions relating to the period of de-requisitioning and re-instatement, but its main provisions deal with the very large number of cases in which valuable buildings have been erected, or extensive work done, on requisitioned land and on other land, either under Regulation 50 of the Defence (General) Regulations, 1939, or by arrangement between the interested parties, and for which the expenditure incurred has been mainly or wholly borne by the Exchequer, or by a person having no interest, or a limited interest, in the land.

The Bill is divided into ten parts, of which the first three probably are the most important. Part I proposes the appointment by the Treasury of "The War Works Commission" to inquire into proposals for the exercise of the powers conferred in Parts II and III of the Bill in those cases where the Crown's new compulsory powers are opposed. Part II is designed to give the Crown new compulsory powers of acquisition which appear to be extremely far reaching. Clause 5, for instance, provides that where there are Government war works on land, the powers of acquisition shall be exerciseable if those works were constructed wholly or partly at the expense of the Crown, or of some other person, if, in the opinion of the Minister concerned, (*a*) the value of the works ought, by the acquisition of the land, to be preserved either for the Crown or some other person, having a limited or no interest in the land, or (*b*) the right to use any of the works (whether then or thereafter) ought, by the acquisition of the land, to be preserved or secured, either for the Crown or some other person having a limited or no interest in the land, and the case is not one where the land can be acquired under the Defence Acts, or (*c*) the right to determine the use to which the works are put (either then or thereafter) ought, by the acquisition of the land, to be secured for the Crown, and the case is not one where the land can be acquired under the Defence Acts.

Clause 6 gives the Minister the right to requisition land, whether there are Government war works on it or not, where the value of the land has been diminished by Government war work done thereon, or by damage caused by Government war use if, in the Minister's opinion, the cost of restoration of the land to its original condition is likely to exceed the diminution in its value and that of any adjoining land held by the same person, or if he feels that in the public interest it is desirable that the land should be dealt with in a particular manner with a view to its partial or total rehabilitation.

Clause 7 authorises the Minister, contingent on the grant of the previous powers, to acquire any easements on restrictive rights in connection with the user of any other land which he feels is essential to the use of the original land, and he may, if there are Government works anywhere on the original land, discharge or modify any restriction on the user of that land, or restriction as to building thereon arising by virtue of any contract, if he considers that such restriction would prevent the retention of the works on the land or impede the reasonable user of the works for public or private purposes. It is of particular interest that, while Clause 7 provides for the reference of opposed proposals to the War Works Commission (which, be it noted, is appointed solely by the Treasury) the Minister is empowered in certain circumstances and under certain conditions to proceed with the acquisition of the land even should the Commission consider that it ought not to be acquired!

Part III of the Bill confers powers on the Minister concerned, exercisable by Order, subject to the approval of the Minister of War Transport, for the permanent stopping up or diversion of highways to permit of the retention of airfields or factories. Part IV deals with work done by the Post Office during the war under Emergency Powers; Part V simplifies the procedure under which local authorities can purchase compulsorily land; Part VI provides temporary power to remove works constructed and to repair damage done under emergency powers; Part VII relates to the powers of compulsory acquisition under the Bill, and Part VIII requires that compensation payable on the compulsory acquisition of land under the Bill should, broadly, be assessed by reference to the condition in which the land was before the buildings were erected or work done.

It will be seen from the foregoing brief summary that the Bill, which contains 55 clauses, embodies some very extensive proposals which may affect vitally the railway companies and other landowners. Among other points the railway companies and the L.P.T.B. will be concerned to secure protection of their interests in the numerous cases where, in connection with the national war effort, they have allowed the Government to utilise land owned by them for the erection of buildings, financed wholly or partly by the Government. The companies have also allowed the Government the use of many small sites at their stations and docks for the erection of canteens, huts, etc., for war purposes, the permanent retention of which would be very undesirable in a number of cases. Further, they have allowed the Government directly, or on behalf of private firms, to secure the temporary occupation of railway workshops and other premises for war purposes. The possibility that the Government might compulsorily acquire the land on which such buildings stand would be regarded very seriously by the railway companies and the Board, and we understand that they are giving special consideration to the important issues raised by the Bill.

Railway Passenger Traffic in U.S.A.

IN our February 11, 1944, issue an article under this heading reviewed passenger traffic developments and prospects in the United States. We are now able to make a further survey of the American situation through the prompt arrival of the Passenger Progress Annual number published by our contemporary the *Railway Age* on November 18. This special number purports to be not so much a review of 1944 achievements as a foretaste of things to come, when the restraints of war no longer dominate the picture. It gives, however, enough statistics to show that 1944 passenger business in the States was about four and one-third times as large as in 1940 before America entered the war. For the month of July in the two years six average daily results afford a striking comparison as indicated in the table below:—

	1940	1944
Passenger miles (thousands)	72,374	280,830
Passenger train miles (thousands)	1,082	1,297
Passenger train miles per locomotive	148	191
Passenger miles per locomotive	9,906	41,335
Passenger miles per coach	2,623	9,819
Miles per coach	177	290

For the same comparative period the average number of passengers per train sprang from 67 to 216 and the average length of journey on a typical railway rose from 57 miles to 102 miles or four times the average trip over our main lines. Unhappily, a few serious accidents occurred to passenger trains during 1944, one of the worst happening on the last day of the year, but it is calculated that railway passengers in the U.S.A. are three

times as safe now as they were during the first world war, when the Government operated the lines.

After the war, American railways expect strong competition from airlines, buses and private motorcars. Even in wartime 85 daily flights are made from Chicago, 27 of them to New York and 12 to San Francisco. The airlines aim at a speed of 300 miles an hour and a reduction in air passenger fares to 3 cents a mile. A rapid growth in private aviation is also likely: manufacturers are building small civilian planes, which are practically fool-proof, and offer to teach purchasers how to fly. Better and faster buses are contemplated by road operators and schemes are being propounded for constructing highways on which speeds of 100 miles an hour would be possible. The private motorcar may be the greatest menace of all when mass production starts again.

The defence of the railways against the attacks of their competitors will be based on an increase in the speed of passenger trains, on safety and on the provision of comfortable coaches equipped with modern fittings and decorated in good taste. A special study will be made of restaurant-car services and sleeping-car accommodation will be improved. The system of issuing tickets and making reservations is being overhauled with the object of saving trouble to passengers. Probably an attempt will be made to lessen delays at stations by running more parcels trains for the conveyance of mails, baggage and express.

Many companies pin their faith to the "streamliners" which have proved their worth at all seasons since they were introduced ten years ago. The annual number gives details of 120 of these high-speed trains and of the mileage they cover—sometimes more than 1,000 miles a day. The list is predicted to be but an indication of what the future will bring forth. In some quarters importance is attached to having one class only on streamliners so that all passengers have the use of the entire train. This democratic arrangement appeals to the great middle-class of America. The Santa Fe runs a de luxe "Super Chief" of 9 coaches between Chicago and Los Angeles and also a one-class "El Capitan" stainless-steel streamliner of 7 coaches. The running time of both trains is 39¾ hr. and in a day they cover 651 miles. All seats on the "El Capitan" are sold far in advance and it earns more gross revenue and a better net return than its aristocratic rival.

The diesel-electric passenger locomotive is rising in favour. Its dependability and low axle-load are valuable features. Railways constructed with light rail and weak bridges have been able with diesels to handle a volume of passenger traffic that could not have been worked by steam locomotives without making costly alterations in the permanent way. The steam locomotive, nevertheless, holds the field as the main prime mover. Close on 87 per cent. of the passenger locomotive mileage is operated by steam power, and rather over 5 per cent. by electric traction, leaving less than 8 per cent. to be worked by diesel engines. The end of the war may bring about a quick change in these ratios, but it is gratifying to read that the modern steam locomotive can operate at an average of over 400 miles a day and be out of service, for all causes, less than one day in every sixteen. One of these up-to-date machines can run about 175,000 miles for every failure that can be charged against the engine. The new steam units thus have high availability as well as a capacity to run long distances at speeds rising to a peak of 70 to 90 miles an hour according to the gradient.

Much thought is being given to the design and decoration of passenger coaches. The general practice of the American railways is to place orders for new vehicles with outside builders. This causes keen competition among the manufacturers of rolling stock and of materials and other equipment required for its construction. A constant search goes on for innovations such as reclining chairs with leg rests, fluorescent lighting, tinted glass to lessen glare from windows, and trustworthy air-conditioning. The manufacturers are as eager as the railways to stir the public imagination by adding distinctive features to new trains and they do not hesitate to advertise their specialities on a scale which has no parallel here.

The after-war passenger programme of the American railways would not appear to differ widely from the intentions of the British railways recorded in our issue of January 5, but the plan of campaign is sketched in rather more vivid language, with the references to streamliners adding a touch of novelty. After all the passenger-train schedules which our railways propose to restore on the return of peace provide an intensity of service to which Americans are not accustomed. The electrified lines of the Pennsylvania constitute an outstanding exception. In 1943 the passenger miles worked over its lines were equal to 20 per cent. of the total passenger mileage of our four main lines. Yet the net ton miles of freight passing over the electrified sections represented 65 per cent. of our total ton-mileage. In its busiest passenger area the Pennsylvania remains a great carrier of merchandise. On most American lines passenger travel is overshadowed by the movement of freight in vast volume. It is a good sign that the principal railways are now taking vigorous measures to promote travel and we shall look forward to learning through future issues of the Railway Progress Annual number how far their plans have succeeded in making passenger business more profitable than it has been hitherto.

A Decade of Streamliners

LAST year, American railways celebrated the tenth birthday of streamline passenger service in the United States. It was in April, 1934, towards the end of the financial depression, that the first Budd-built streamline train was delivered to the Chicago, Burlington & Quincy Railroad, shortly to be followed by the Pullman-built No. M-10,000 on the Union Pacific, both of which were sent on extensive tours of North American lines. Public appreciation was so immediate and emphatic that by the end of 1935, 14 streamliners were operating on 10 different railways; by December, 1939, there were 53 streamline trains at work on 16 railways; two years later 119 streamliners were at work on 29 railways.

With the entry of the United States into the war, progress was arrested, and subsequent growth has not increased the number beyond 133 trains; the difference of 14 is the number under construction at the end of 1941. Actually, therefore, the 143 streamline services in the United States are the product of no more than seven years of development. The three war years that have elapsed since have confirmed public approval of the streamline flyers to such an extent that the managements of the leading American railways are united in their determination to increase this type of service after the war to the maximum possible degree permitted by their financial resources and manufacturing capacity. It is generally felt that although post-war long-distance motorbus competition will be on a reduced scale, private car competition will be no less than before, and air competition will be intensified; and it is as a reply to the air that the streamliner is likely to be the most effective weapon.

Speed, however, has not been the only basis of streamline appeal. Internally as well as externally, the first American streamliners provided a complete breakaway from conventional ideas of railway rolling stock. Internal arrangement, furnishings, *décor*, and lighting of the most modernistic type combined with stainless steel or brilliantly-coloured exteriors, and, on the majority of the trains, with noiseless and cinderless diesel power, to provide an entirely new standard of railway travel. Whereas on certain routes the principal passenger trains, steam-hauled, were finding difficulty in paying their way, the new streamline trains were soon earning from $3 to $6 a mile, and in the extremely crowded conditions of wartime some of the most popular of them are turning over a gross revenue of from $10 to $15 a mile and are working with 20-coach formations daily.

In securing this result, however, factors other than passenger patronage were concerned. The weight of standard American all-steel passenger stock had been steadily increasing, until cars of 70 to as much as 90 tons weight (62 to 80 tons of 2,240 lb.) were becoming common, and with fast trains often weighing from 1,000 to 1,200 tons (900 to 1,070 tons of 2,240 lb.) locomotives capable of developing 3,000 to 4,000 i.h.p. were necessary to enable reasonably high speeds to be maintained. The firms responsible for producing the first streamline trains realised from the start that a drastic reduction of these weights would be essential to successful high-speed operation, and though in their earliest trains this principle of reduction was carried to extremes, coaches between 84 and 85 ft. long are now being built with an average tare weight of 48 tons (of 2,240 lb.), and 70 ft. stock with a tare of slightly under 40 tons. By the use of aluminium, alloy steels, welding, and integrated body and frame construction, this is being done with no sacrifice of safety, as compared with the previous heavy all-steel vehicles; on the contrary, the exceptional resistance of the lightweight stock to shock has been proved in more than one collision or derailment in which these vehicles have been involved. The evolution of the first American streamline trains thus has had a profound effect on United States rolling stock design and construction in general. To the end of April, 2,319 lightweight vehicles had been built for United States railways.

A second factor in streamline success in America undoubtedly has been diesel propulsion. The continuous availability of

the diesels has no comparison with steam. The 2,000 b.h.p. diesel used on the "Peoria Rocket" of the Chicago, Rock Island & Pacific Railroad, for example, was out of service for only ten out of 8,816 consecutive trips over this 161-mile route, which is covered four times daily at an overall average speed of 62·3 m.p.h., stops included. Diesel-electric locomotive No. 1002, of the pool of 4,000 b.h.p. Diesels used by the Atlantic Coast Line for working "Tamiami Champion" streamliners between Washington and the Florida coast resorts, ran 22,000 miles a month for four years, or 2,210 round trips, without major overhaul. Baltimore & Ohio twin-unit 4,000-b.h.p. diesel No. 56 worked the heavy "Capitol Limited" over the 771 miles between Washington and Chicago, out one day and back the next, for 365 consecutive days—a whole year—without missing a single trip, and thereby covered 281,415 miles in the year, much of the distance over severe grades.

The streamline trains connecting Chicago with the Pacific Coast—the "City of Los Angeles," "City of San Francisco," and "City of Portland" of the Chicago & North Western, Union Pacific and Southern Pacific companies, and the "Super-Chief" and "El Capitan" of the Atchison, Topeka & Santa Fe—are all worked throughout over distances of 2,200 to 2,300 miles by 6,000 and 4,000 b.h.p. diesel-electric locomotives without change, on runs taking 39¾ hr. in peacetime and 41¾ hr. in wartime, and with point-to-point bookings of between 70 and 80 m.p.h. over the level country east of the Rockies. Certain of these trains are made up to as many as 17 vehicles, inclusive of their triple-unit locomotives. Records of the railways using diesel power for streamline service show that in no case is the average availability of their locomotives less than 90 per cent., and the most customary figure is from 95 to 100 per cent. over long periods; it is this continuous availability that makes it possible for the diesel locomotives to make such unprecedented mileages, as compared with previous steam power. The "Des Moines Rocket" of the Rock Island line, for example, has completed 1,565,053 miles in no more than six years, with substitute service on five only out of 4,390 trips, so showing an availability of 99·8 per cent. Such figures as these, though balanced in part by the expense of preparing track and signalling for high-speed service, help to explain the popularity of streamline trains in the United States equally with the railway managements as with the public.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

The Irish Transport Merger

40, Dovedale Road,
Stoneygate, Leicester. January 9

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—With the formation in Eire of the new Government-controlled Irish Transport Company (Córas Iompair Eireann) I think we have the first example of trams, buses, railways, and steamers all being run under the control of one directorate. The two main constituent companies of the new amalgamation are the Great Southern Railways Company, which controls practically all Eire's road and rail transport, as well as some small coasting steamers, and the Dublin United Transport Co. Ltd., which controls all Dublin's bus and tram services.

I am given to understand that the new company will also have some running rights over the portion of the Great Northern Railway in Eire.

Yours faithfully,
JOSHUA HAZLETON

London-Manchester Services

27, Nether Edge Road,
Sheffield 7. January 14

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Having read the letter of your correspondent on the London & Manchester train services in your January 12 issue, I should like to comment on it, and draw his attention to one or two points he seems to have overlooked.

In the first place I do not dispute the capabilities of the locomotives to haul the trains and to keep the schedules he has been at such great pains to set out, admirable as they may be, but there are other things to take into consideration before such a service becomes feasible. To design a time table is one thing—to operate it, something vastly different, particularly so in wartime.

Both the Western and Midland Divisions of the L.M.S.R. have a very considerable mileage of additional running lines out of London. The Midland Division, for instance, has additional running lines from St. Pancras to Glendon Junction and from Wigston to Trent Junction. The L.N.E.R. line out of Marylebone is not so fortunate. Although having the choice of two routes, the easier *via* High Wycombe is for the most part joint property with the G.W.R. which has a very heavy traffic on its own account to work from London to Birmingham and beyond, which has to fit in with the L.N.E.R. traffic over this route. Over most of the alternative route the London Passenger Transport Board has some say in its working. These two routes, however, join up at Grendon Underwood Junction and thence to Woodhouse. With the sole exception of the Chesterfield loop, there are no additional running lines of any consequence. Such as are provided are running loops, as at Woodford, Leicester, Nottingham and at other places. Operating officers will tell you that although a running loop is a vast improvement on the refuge siding (usually entered by backing-in), for clearing the main line it falls lamentably short of the lengthy additional running lines when it comes to keeping traffic on the move. So it would appear that the L.M.S.R. is in a far better position to operate its traffic, heavy as it is, than the L.N.E.R. with only two tracks for most part of the way.

Also the L.N.E.R. carries a very heavy mineral traffic on these lines, from the Nottingham and Mansfield areas to the G.W.R. *via* Woodford and Banbury to London, in addition to the goods traffic which is by no means negligible. This traffic has to be fitted in with Government "specials," passenger services, etc., over a difficult route from the grading point of view.

The passenger services have been little improved since January, 1940. If your correspondent will compare the present services with those for the winter of 1938-39, he will see how drastic the cuts have been. I believe that it is because of the heavy traffic of other kinds, that the present meagre services have to be operated, and cannot be improved. It is also suggested that punctuality will be improved—will it? No doubt some of the trains will have to be duplicated on certain days, if experience on the Western Division, L.M.S.R., is anything to go by! which would certainly make matters worse, as at Leicester Central, with only one up and one down through platform line, and at Sheffield (Victoria), which is an operating headache at the best of times.

Yours faithfully,
D. J. WORRALL

Unknown People and their Parliament

"Hillside," Colwyn Crescent,
Rhos on Sea. January 11

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—It may well be that I am justly to be numbered amongst those, to quote Mr. Ashley Brown's article in your issue of January 5, "whose practical knowledge and executive ability is only to be estimated by the ounce" and certainly I would not claim to be qualified to speak with finality upon the very vexed question which he raises. He makes one or two points, however, upon which a mere gramme of these attributes renders it possible to comment.

Mr. Brown states that "before this war if he (the worker) did not care to work for Jones he could work for Robinson," the implication being that workers were in the habit of receiving, from time to time, a deputation of employers petitioning, hat in hand, for their services. I probably exaggerate, as does Mr. Brown in his sentence immediately following the last quotation, but it is difficult to reconcile this implied freedom of choice with a pre-war figure of unemployed numbered sometimes in millions.

Many sins of omission and commission are laid by Mr. Brown at the door of the State, an entity which I have yet to see satisfactorily defined, and in so doing he endeavours to separate it from the individual, the truth being that it cannot be so separated. No one contends that the State built the railways and even had they been nationally owned from their inception that contention could not be made. Under whatever political system they function they will still have been financed and built and will still be maintained and operated by men and women and that political system itself will likewise be administered by men and women. Any flaws which arise are flaws in human nature and capacity and no portrayal of the State as a vague but horrific menace should be allowed to obscure that fact.

Finally I refer to one of what are described as the alternative dispensations under which we are to live, that is, that which envisages that we shall "remain free to meet our own bills and enjoy our own rewards." That privilege is possessed by most of the human race, the majority of whom, be they "humble proprietors" of railways or no less humble employees thereof, would probably say that they had so far found it somewhat doubtful.

Yours faithfully,
A. RICHARDSON

XUM

The Scrap Heap

During 1944 the London Transport staff bought 282,012 savings certificates, making a total of 1,361,664 since the beginning of the scheme.

* * *

Every month a thousand ration documents, lost on buses, trains, and trams, reach the London Divisional Food Office from the Lost Property Office of the London Transport Board.

* * *

RE-ELECTION OF PRESIDENT ROOSEVELT

This election has proved once more how little influence the daily press wields today. Most of the newspapers north of the Mason and Dixon Line supported Mr. Dewey. They contained many editorials written on his behalf. But we suspect that few readers of these newspapers read those editorials. Time was when the bulk of the readers of every daily newspaper bought it to read the daily comments of the editors and their staffs on events as much as for the news; with not a few readers that was the chief reason. The daily press was then influential. It is influential, in its editorial columns, no longer. The people have come to regard these editorials as superficial; and in the overwhelming majority of instances they are right in so thinking. The average editorial writer has come to regard himself not as the member of a profession that requires intelligence to fulfil its duties; he has come to regard himself, as one of the most brilliant editorial writers this country ever had bluntly put it, as an intellectual prostitute. . . . How many editorial writers are expected to write, or are allowed to write, intelligently? Those who command them seldom or never give more than two orders for an editorial, after stating what position the writer is to take. The first is: "Make it short!" and the other is like unto it: "Make it snappy!"—*From "The Argonaut," San Francisco.*

During last summer 5,714,485 packages of tomatoes, representing over 10,000 wagon loads, were carried by the railways from the Lea Valley, Worthing, Hampton and Swanley growing areas. A further 1,028 wagons, containing 447,456 packages, were dispatched from the Basingstoke and Slough areas.

* * *

THE DUKE AND THE RAILWAY

By a private letter from Dover we hear that in consequence of the train having been one day last week one hour past its time, the Duke of Wellington, who went by it to attend the Council, arrived when it was over. His Grace was much provoked, and went to the directors to reprobate in strong terms their want of punctuality. The directors were in despair at the occurrence, and endeavoured to excuse themselves by saying, that had they known his Grace was a passenger, they would have dispatched a special train. This declaration was far from calming the complainant, who, with that true and admirable feeling of justice which characterises his Grace, asked, "What am I, the Duke of Wellington, travelling by railway, more than any other individual?" and propounded to these gentlemen that it was their duty to study the convenience of the public.—*From "The Scotsman," November* 23, 1844.

* * *

100 YEARS AGO

[*From* THE RAILWAY TIMES, *Jan.* 18, 1845.]

YORK AND NORTH MIDLAND RAILWAY.—NOTICE is hereby given, That the Half-Yearly General Meeting of the Proprietors of Shares in the York and North Midland Railway Company will be held in pursuance of the Act of Incorporation, in the Offices of the Company, Tanner-row, in the city of York, on Tuesday, the 4th day of February next, at Twelve o'clock at noon precisely.

The Report of the Directors, and a Statement of the Accounts will be ready for the inspection of the shareholders at Ten o'clock on Monday, the 3rd day of February next.

GEORGE HUDSON,
Chairman of the Board of Directors.
GEORGE BAKER, Secretary.

York and North Midland Railway Office,
January 2, 1845.

"Riding the Rods," or travelling on the brake gear underneath the rolling stock in the U.S.A., is a widespread habit on the part of the many who practise the gentle art of hoboism, and the type of dealer in unusual appliances who is prepared to supply a burglar with his kit, has long had available a well-constructed appliance to enable the "rods" to be ridden with some measure of comfort and safety. We understand that the practice has extended to Free China in war conditions. The old Chinese woman shown in the above picture seems to have fixed herself, her emergency provisions, and her essential belongings, fairly comfortably, but it is doubtful whether the train crews permitted her to remain in this position for the journey

TRAIN TALK

Crowded railway carriages are, on long journeys, the real House of Commons in this war. The Members of Parliament rarely use them, if I am to believe the fortunate few who claim first class sleeping compartments from the North to London.

I am more fortunate than the fortunate few, because I get public opinion, albeit somewhat compressed and concise.

Plans for the future, in one carriage from York to London, were of a personal character. The Atlantic Charter seemed a somewhat watery business as indeed one would expect. It seemed as valuable to my fellow passengers and as familiar as the Declaration of Independence or the terms of Magna Charta.

They were all in the services. One intends to be a priest. One wants to go back to take over the hotel-garage that his father and mother run at Llandudno, "I was going to be a teacher," said a young sergeant pilot, "but that's O.P.H. now. I'm going to Canada when this is over. My best pals are Canadians," he averred. None cared for the dream of a classless society. None cared for the socialisation of the means and instruments of production. None adhered to any political party.

It gave me a lesson. It made me glad in a way I was only a temporary bureaucrat.

I will not be one of those they hang on the lamp posts, I will have escaped again into civil life, my labours of these days for the State forgotten. Although neither priest nor hotel-garage keeper nor yet backwoodsman, I will remember that—under discipline, fighting for democracy—their dream, as mine, was to be free to do in life as they wanted!—*From "King's Cross to Waverley" by "Timoleon," published by William Hodge & Co. Ltd.*

* * *

A tribute is paid by *The Victorian Railways News Letter* to the British railways by its decision to publish extracts from "British Railways in Peace and War," the publication issued on behalf of the four main-line companies and the L.P.T.B. The first quotation appears in the issue of the *News Letter* for October last, in which it is stated that "our readers will be able to follow the developments that occurred in far-seeing railway enterprise in Britain in the period between the wars."

* * *

TAILPIECE

(*The L.N.E.R. has produced a new first class coach of standard design*)

In matters of comfort and safety with speed
The railways of Britain assuredly lead.
They have enterprise, craftsmanship, courage at call,
And part of their programme is comfort for all.

In spite of war's burdens and having to do
Too much with too little, they keep it in view,
And even produce with a zeal as before
A new standard coach in the midst of a war.

In matters of rolling stock, speed, and the rest
The railways of Britain must rank with the best.
They have planned and accomplished, and here is the sign—
A new first class carriage, the pride of the line.

E. C.

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

NEW SOUTH WALES

Railway Personnel

At the end of the financial year on June 30, 1944, 4,036 men of the New South Wales Government Railways were serving in the Armed Forces. Because of the manpower position, it was necessary to restrict leave to employees who desired to join the Forces, but special efforts were made to release young men for air crews on account of the urgent need for recruits in that section of the Forces. During the year, leave to serve with the Armed Forces was granted to 269 men. More than 400 men are on loan to other Commonwealth and State Government Departments, including 243 on loan to the Commonwealth Railways. The total railway staff (including those in the Defence Forces) on June 30 last was 52,030, compared with 51,168 a year earlier.

WESTERN AUSTRALIA

Accident at Claremont

A train smash unique in the history of the Western Australian Government Railways occurred at about 1.30 a.m. on September 12 last. The accident was preceded and attended by a remarkable chain of circumstances which commenced with the tragic death of a railway fireman and terminated with a section of an Australian Standard Garratt locomotive being suspended across a road subway parallel to the main line.

The train concerned was headed by A.S.G. locomotive No. 26 (weight 119 tons), hauling a full load of wheat aggregating approximately 800 tons, and was proceeding towards Fremantle, when, approaching Karrakatta, the fireman was struck, either by a missile thrown from, or by an open door on, a passing passenger train. The goods train was stopped at Karrakatta Station and the fireman, badly injured, was removed to hospital, where he was found to be dead.

The train, with the driver alone on the engine, then proceeded on its way to Fremantle. At Claremont (the next station) the signals were set against it for the purpose of diverting it from the main line on to what is called the back road, a line with a dead end about 20 yards on the station side of the Stirling Road subway.

Results of Inquiry

An official inquiry into the occurrence disclosed that when the goods and passenger trains crossed near Karrakatta, the fireman had been seated with his back towards the direction of travel and had been leaning over the side of the cab to watch the action of the injector, and was struck on the head and fatally injured. The portion of the train which struck him was not identified positively, but an open carriage door is suggested as the most likely possibility.

Karrakatta Station has no facilities for sidetracking a train of that kind, and arrangements were made for it to proceed to Claremont to await the arrival of a pilotman, as a relief fireman was not then available. The driver, however, was under the impression that he had the main line to North Fremantle, and attended to his fire to ensure steam supply on the grade after passing through Claremont. He did not observe that the signals at Claremont were set for the back road, and did not realise that his train had been diverted until he had passed through the turnout. When he realised that he was no longer on the main line he made every effort to halt, but he was too late to stop the train before the engine had crashed through the dead end, and, after travelling for 16 ft. off the rails along the embankment, crashed over the subway (31 ft. wide), across which a portion of it remained suspended (see accompanying illustration). The driver, although shaken, was uninjured.

View showing section of Standard Garratt locomotive suspended over roadway after crashing through a dead end at Claremont, Western Australian Government Railways

UNITED STATES

Diesel Road Locomotive for the Pennsylvania Railroad.

Recently the New York Central System purchased its first diesel-electric road locomotives for trial purposes, and the Pennsylvania Railroad now has ordered from the Electro-Motive Division of the General Motors Corporation a 4,000-b.h.p. diesel for similar experiments; previously both companies had stood firm in their allegiance to steam power, except for shunting work, for which, in common with all other Class 1 railways in the United States, they have for some time been users of diesel power. The Pennsylvania has always built its own steam locomotives, and, with the help of its locomotive-testing plant at Altoona, has evolved some of the most advanced steam locomotive designs in North America. It is doubtless in competition with the experimental 6,900-h.p. steam turbine locomotive and the 4-4-4-4 express locomotives, recently built, as well as with the " K-4s " Pacifics, that the forthcoming 4,000-b.h.p. diesel will be tried, on such high-speed trains as the " Broadway Limited," which at present is hauled by the new 4-4-4-4 steam engines on the Harrisburg-Chicago section of its journey, and has point-to-point timings of up to 70·4 m.p.h. from start to stop

C.T.C. on the Rock Island

On receipt of materials which have now been allocated by the War Production Board, the Chicago, Rock Island & Pacific Railroad will begin the installation of centralised traffic control on 127 miles of line between Caldwell and Herington in Kansas, and 31 miles between Forth Worth and Dallas, Texas. Both these sections are on the main line from Kansas City to Houston, Texas. It is calculated that the former will result in a saving of 37,244 wagon-days and 1,387 engine days annually, and the latter of 2,274 wagon days and 86 engine-days. When the work is complete, the Rock Island will have approximately 500 miles of line c.t.c. equipped, including 180 miles of double track between Chicago and Rock Island.

The Rock Island's Chicago Programme

Work has been begun by the Chicago, Rock Island & Pacific Railroad on a complete reconstruction and rearrangement of its coach yards and shops in Chicago, which is expected to cost $1,190,000. The plans include the construction of new machine, woodworking, electric, brake, and other shops; new test laboratory, oil storage building, offices, store rooms, and locker accommodation. There will be nine service tracks in the new yard, separated by concrete platforms, and one track for handling spare wheels; also the wheel pits are to be relocated. An automatic carriage washer is to be installed, and all trains will pass through this as they come into the yard.

Reading Locomotive Reconstruction

In conformity with the present wartime practice of reconstructing and modernising existing locomotives as far as possible rather than seeking to obtain the materials for entirely new construction, the Reading Railroad is to rebuild 20 of its 2-8-0 locomotives with the 4-8-4 wheel arrangement. The work will be done in its own Reading shops, and is expected to cost $2,800,000; this will include new tenders, and the figure quoted makes it clear that the reconstruction will be very extensive. As yet, the Reading has no 4-8-4 locomotives, but is coming into line with modern American practice, which greatly favours the 4-8-4 for fast or " hot shot " freight service, as this is usually known.

MEXICO

New 4-8-4 Steam Locomotives

The National Railways of Mexico are to purchase from United States builders 32 steam locomotives of the 4-8-4 type. This considerable accession of motive power is in line with the extensive development of the Mexican railway system now in progress, and will provide the National Railways with motive power units considerably more powerful than anything at present in use.

Water and the Railway Engineer

*The effect of water on the construction and maintenance of railways**

DESPITE its enormous benefits, water is one of the most costly items so far as the engineer is concerned, as its presence, whether in the form of land drainage, streams and rivers, or the sea, has to be provided for by bridging or the construction of culverts or retaining walls. Water has, in fact, provided us with many, if not all the outstanding engineering structures in this country, and indeed the world, and it would not be too much to say that, in nearly every case, the structure carries a railway either over or under water.

In this country all large and important cities and towns are sited either at the mouth of or on large rivers, and one has not to go farther than the City of Bristol to see the effect that its River Avon has had upon railway construction. From its source to its mouth the Great Western Railway alone crosses the Avon 25 times with bridges varying in span from 30 ft. to 140 ft., and 10 of these are within the city boundary; and on the Bristol Engineering Division, 180 structures of from 7-ft. to 140-ft. span have had to be provided for the passage of water. An example of a different kind is the continuous sea wall from the Exeter side of Starcross, through Dawlish, to Teignmouth, with its attendant groins.

Apart from bridges and sea walls, provision in new construction has to be made (in the form of culverts under the banks) for small streams, and for the free passage of land water through the banks in low places. Similarly, where a railway is in a cutting, streams have to be carried over the railway by aqueducts. The necessity for constructing a tunnel under water is rare, and the Severn Tunnel is unique in its length and pumping.

Other features relating to water have to be dealt with as they arise, such as the cutting off of land water, by ditches on the high side of cuttings in side-long ground, and the provision of pipes, or half round drains, to lead water from land drains, where found, to connect them with drains in cuttings. With railway gradients normally flat, drains are required in most cuttings. There was a convention that an open ditch would clear itself, if on a gradient of 1 in 200 or steeper, but from experience the writer has found very few strata in which this is effective, largely because the general under strata of this country is clay or a combination of it. For the efficient maintenance of railway track the slogan must be drainage.

One of the most troublesome combinations is a clay cutting on a flat gradient, or worse, one which is level, and this combination is more frequently met on fast and heavily-worked routes. There have been cases where drains have been forced up more than 18 in. in 20 years, resulting in the formation becoming entirely water-logged, the clay forced up through 18 in. of ballast, thereby covering and fouling the ballast, with resultant exceedingly bad running. In such cases, which are happily rare, it is necessary to remove the track in short lengths, dig down and remove ballast and clay to a depth of 2 ft., carefully cross-grade the new formation, and lay a fresh drain. The formation is then covered with 6 in. of sand, and fresh ballast laid.

In some cuttings the deposit in the pipes is so rapid that wires are permanently left in them, to facilitate cleaning by dragging bags, sacking, and other objects from catchpit to catchpit. Sound advice to young engineers when preparing schemes for the drainage of considerable areas, is to avoid trying to save expense by using the smallest pipe possible, as the main cost is the digging. Where drains run through strata which is soluble, like clay, catchpits should be placed not more than 100 ft. apart.

In addition to provision for water at peace, engineers are constantly battling with the damage caused by water in storm and flood, and a railway maintenance engineer is always on the lookout for trouble during periods of heavy and continuous rain, or snow and high winds. In recent years water has been running through Box Tunnel several inches above rail level; Corsham Station flooded to the height of the platform; Lawrence Hill Station with a 2 ft. 6 in. depth of water between the platforms; and water 12 in. deep through Chipping Sodbury Tunnel. On some portions of the railway flooding of the line is so frequent, where a combination of tide, land water, and wind are prevalent, that permanent marks are placed alongside the line, at a height of 12 in. above rail level, at which trains must cease to run.

One experience with regard to floods is that much more damage is caused by the ebb than with the flow. In one case up the Swansea Valley, the River Tawe overflowed its banks, flooding a large area at high tide, without injury or damage to works. When, however, the tide receded, and the vast amount of water which had slowly accumulated during the rising tide began to flow off the land, the bridge openings were taxed beyond their capacity, undercutting wing walls, which collapsed, and seriously endangered abutments.

On the Bristol side of Badminton Station, the railway passes over an underground stream. The line is in cutting, and on a gradient falling towards Bristol, passing through Chipping Sodbury Tunnel, with no possible outlet for drainage before reaching Chipping Sodbury Station, a distance of 4 miles. Above the stream, and in the cutting, is a natural hole or shaft, filled with loose rock, and intermittently the level of the water rises and overflows into the cutting, causing considerable flooding, beyond the capacity of the cutting drains, and, therefore, flowing over the surface of the cutting. The effect of this is so far-reaching, and the hindrance to traffic so great, that many schemes have been prepared to cope with this water. One suggestion has been made that a circular shaft, built round the hole, inside which the water could rise until it reached such a level that it would gravitate towards Badminton would be effective, but a detailed examination of the site showed that the extent of the broken rocky ground was so great that it was not considered possible to contain the water. At present, precautions are taken that no loose timbers are allowed to remain in the vicinity.

A constant watch is necessary on the banks of rivers, where they run alongside the railway, and periodical examinations have to be made of the condition and stability of retaining walls, piling, and the banks of the rivers, for erosion. Where the railway runs in close proximity to the sea, especial care has to be taken, conditions carefully noted, and reported. To the west of Llanelly, in a period of 20 years, the sea eroded the land between it and the railway, a distance of a quarter of a mile, which necessitated work Sunday after Sunday, placing with cranes 6-ton blocks of stone to save the line.

Between Exeter and Starcross, one morning in 1935, during a period of storm, the ganger walking his length noticed a small continuous crack in the cess between the sea wall and the down main line. He completed walking his length and returned to the place, found the crack had opened to 3 in., and decided to stop the next train and instruct the driver to proceed with caution. This train happened to be the Divisional Engineer's Coach, which was fortunate, as immediate arrangements were made for an experienced man to remain at the site, with instructions to watch, and act if necessary. At 9.30 p.m. that night this man telephoned that 200 ft. of the wall had been undercut by the sea, and had fallen outwards into the sea, and the railway was closed to traffic. Early next morning it was found that all the filling under the down line had been carried away and the line left hanging, but that the up line was secure; this was used for material trains. At 6 p.m. the up line was reopened for traffic, and at 5 p.m. on the next day both lines were working.

In central Wales, near the town of Newtown, is a reservoir situated some distance from, and above, the railway. The overflow, or original stream, passes under a bridge to join the River Severn. Very early one stormy morning the bank of the reservoir burst, and the water rushed down the stream, doing great damage to property and stock. About 2 a.m. a farmer, looking for pigs, reached the railway and found a large hole under the down line and part of the bridge gone. He roused a ganger living close by, and was fortunately in time to stop a goods train. When the Divisional Engineer reached the spot he found that one wing wall and part of an abutment and the arch over had entirely disappeared. With temporary baulks the line was restored for traffic, at slow speed, and reconstruction work proceeded with. New foundations were dug, and, as pumping was ineffective, it was decided to build the cement concrete foundations with the concrete mixed dry, and bagged. The bags were lowered into the water, and very carefully emptied. Eventually all the water was forced out. This completed, the repairs were carried out normally. Five years afterwards a similar affair at the same spot occurred, with very much worse result, as, on this occasion, the whole of the bridge was washed out by the flood water, except the wing wall and part abutment and arch that had been built five years before.

The sea walls by Dawlish and Teignmouth are inspected every day, and measurements taken from the top of the wall to the sand. It has sometimes happened that during one tide 6 ft. deep of sand by the wall has been removed, exposing all the footings, and the bulk of it brought back by the next tide. During the equinoctial gales anxiety is felt where the line is exposed to the sea. In 1928 on the Welsh coast, 8 miles of line on 6 to

(*Continued on page* 73)

* Abstract of a paper by Mr. H. A. Alexander, presented to the Bristol section of the Permanent Way Institution, on January 15, 1944

Large Metre-Gauge Locomotives for India

Two-cylinder 2-8-2 engines are latest arrivals on the B.B. & C.I.R.

RECENTLY two 2-8-2 tender locomotives have been designed and built for the metre gauge by W. G. Bagnall Limited, to the requirements of the Director-General of the India Stores Department, and have been allocated to the Bombay, Baroda & Central India Railway.

These locomotives are amongst the largest built for the metre gauge; their total weight (with tender) in working order is nearly 101 tons. These extreme dimensions were dictated largely by the arduous operating conditions under which they will have to work. They are intended to haul trains weighing 400-500 tons on grades of 1 in 55 at 15 m.p.h.; moreover, the radius of the minimum curves in only 358 ft., and 60-lb. rails are used for the permanent way.

The large size of the boiler is notable; and the wide firebox has been given a generous grate area—no less than 32·33 sq. ft.—for burning Indian coal. A rocking-finger type of grate is used, with a dropgrate in front; both are operated from the footplate. Steel plates of best firebox quality are used for the inside firebox, which has a brick arch carried on three arch-tubes. There is a large combustion chamber extending into the boiler barrel. Best Yorkshire iron stays are used for both roof and water spaces.

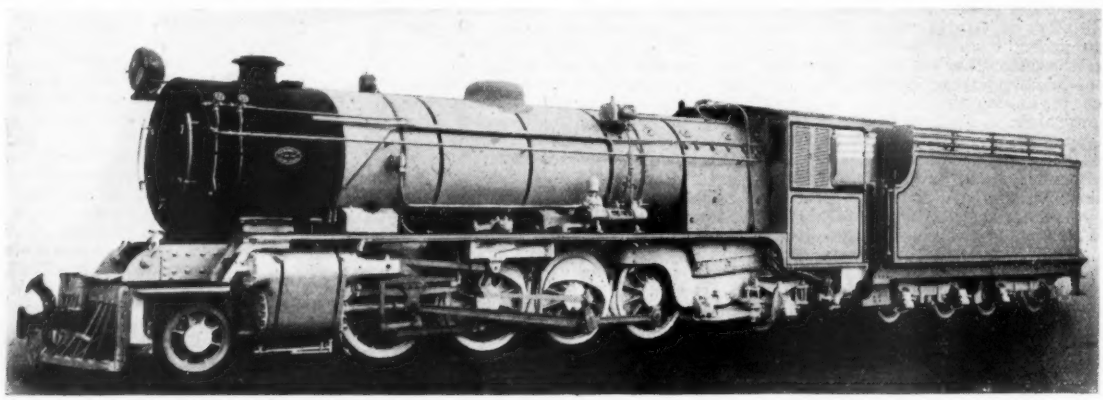
A Melesco 21-element superheater is arranged in flue tubes 5¼ in. in outside diameter; the 104 small tubes have an outside diameter of 2 in. The smokebox contains a spark arrester formed of a system of deflector plates and wire netting, and a self-cleaning arrangement is provided. A soot ejector at the bottom of the smokebox is operated by a steam cock from the side of the footplate. A steam stand distributes steam to the ejector, steam brake valve and other fittings, which can be isolated from the steam pressure by an emergency shut-down valve. An interesting feature is the provision of a Worthington-Simpson horizontal duplex double-acting pump, delivering to a clack on the centre line of the boiler barrel, in addition to the two No. 9 Gresham & Craven Simplex injectors. Two 2½-in. Ross pop safety valves are mounted on the firebox. Owen's patent type of regulator valve is located in the dome.

The boiler is covered with steel clothing plates carried on steel crinoline bands and longitudinal carrying bars. The ashpan is of the self-dumping hopper type with a bottom-discharge door conveniently operated by a lever from the footplate.

The main frames, 1 in. thick, are of the orthodox plate type, stayed by steel castings and widened behind the trailing coupled wheels by a supplementary rear frame 1½ in. thick to accommodate the wide firebox and two-wheel truck. A girder-steel casting braces the two frames together, and the forward continuation of the rear frame over the trailing coupled wheels, against which it is fastened to the main frames, provides additional reinforcement against draw and buffing stresses. The leading truck is of the swing link type with side-spring control. One of the most interesting features of the suspension is the method, applied to the trailing wheels, of ensuring that the loading on the springs is always carried centrally over the axle bearings. The spring gear is compensated throughout in two groups; the leading truck, leading and intermediate coupled wheels form one group, and the driving and trailing coupled wheels, with the trailing truck, form the other group.

Steam is distributed by inside-admission piston valves located above the cylinders and actuated by Walschaerts valve gear, which is controlled by steam reversing gear arranged on the right-hand side of the engine. Hydrostatic lubrication is applied to the cylinders, hard grease lubrication for the connecting rod large ends, and all the coupling rod bearings which are fitted with floating bushes, and syphon lubrication to the other motion parts.

The spacious cab affords a good look-out for the driver, whose position is on the right-hand side. The vacuum brake is fitted with a 30-15-15 ejector and graduable steam-brake valve arranged for



General view of two-cylinder 2-8-2 locomotive for the B.B. & C.I.R.

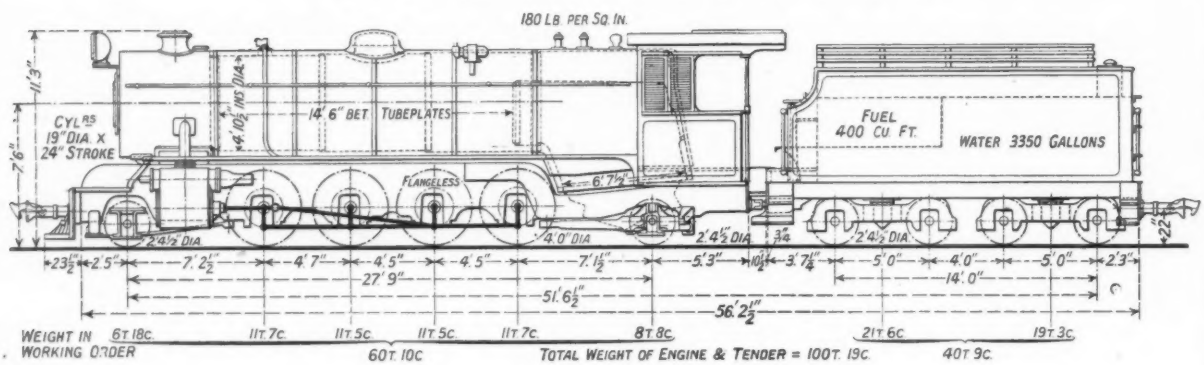


Diagram showing principal dimensions and weights for the locomotive and tender

operating the steam brake on the engine and the vacuum brake on the tender and train. The electrical equipment supplied by J. Stone & Co. Ltd., of London, embodies 500-watt turbo-generator supplying current at 24 V. to a 14-in. diameter headlamp and inspection lamp. The central buffer is of the M.C.A.-P.H. type and was supplied by the A.B.C. Coupler & Engineering Co. Ltd.

The principal dimensions of these locomotives and tenders are tabulated below:—

Cylinders (2), dia.	19 in.
,, stroke	24 in.
Piston valves, dia.	9 in.
,, ,, stroke	4½ in.
Wheels, coupled, dia.	4 ft. 0 in.
,, leading and trailing trucks, dia.	2 ft. 4½ in.
Wheelbase, rigid	13 ft. 5 in.
,, engine, total	27 ft. 9 in.
,, engine and tender, total	51 ft. 6½ in.
Length of engine and tender, overall	60 ft. 9 in.
Evaporative heating surface—	
Tubes	1,206·7 sq. ft.
Firebox	167·0 sq. ft.
Arch tubes	14·0 sq. ft.
Total	1,387·7 sq. ft.
Superheating surface	298·3 sq. ft.
Combined total	1,686·0 sq. ft.
Grate area	32·33 sq. ft.
Boiler pressure, per sq. in.	180 lb.
Tractive effort (at 85 per cent. boiler pressure)	27,616 lb.
Adhesive factor	3·66
Ratio of heating surface to grate area	42·9/1
,, of firebox heating surface to grate area	5·165/1
Ratio of tractive effort to evaporative heating surface	19·9/1

The engine weighs 60 tons 10 cwt. in working order, and the tender, which has a fuel capacity of 400 cu. ft. and a water capacity of 3,350 gal., weighs 40 tons 9 cwt. The total weight of engine and tender in working order is thus 100 tons 19 cwt. The adhesion weight is 45 tons 4 cwt. The engines and tenders were dismantled and packed for shipment to India.

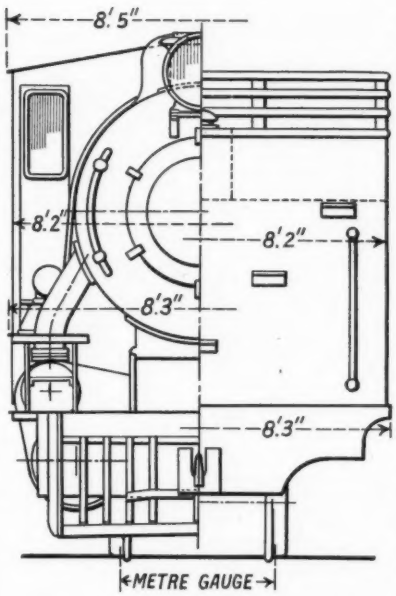
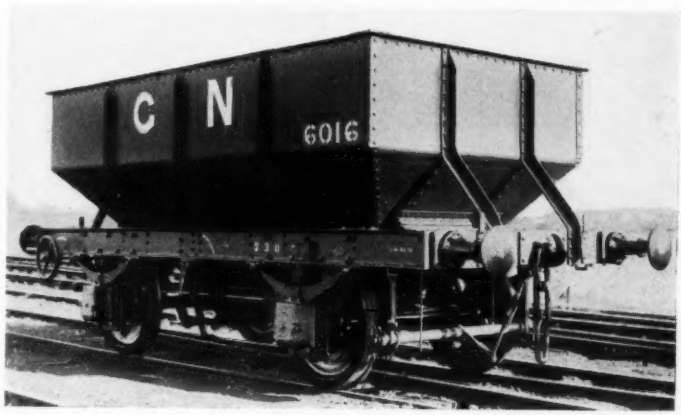


Diagram showing maximum widths of locomotive and tender

TUBE INVESTMENTS LIMITED. — Mr. I. A. R. Stedeford, Chairman & Managing Director of Tube Investments Limited, at the recent annual general meeting, said that the directors believed that there was big and good business to be had from Russia and already they had had interesting and exploratory talks with Russian representatives in this country. They intended to send missions comprising trained personnel to examine market conditions on the spot in various countries. In addition to South America, they had planned to visit, in the near future, Canada, India, South Africa, Europe, and the Near East. The first mission had just left for South America, and when its tasks were done, one of its three members would remain there as resident technical representative. As opportunity offered they proposed that all the important markets of the world would be similarly treated.

G.N.R. (I) Hopper Wagons for Gypsum

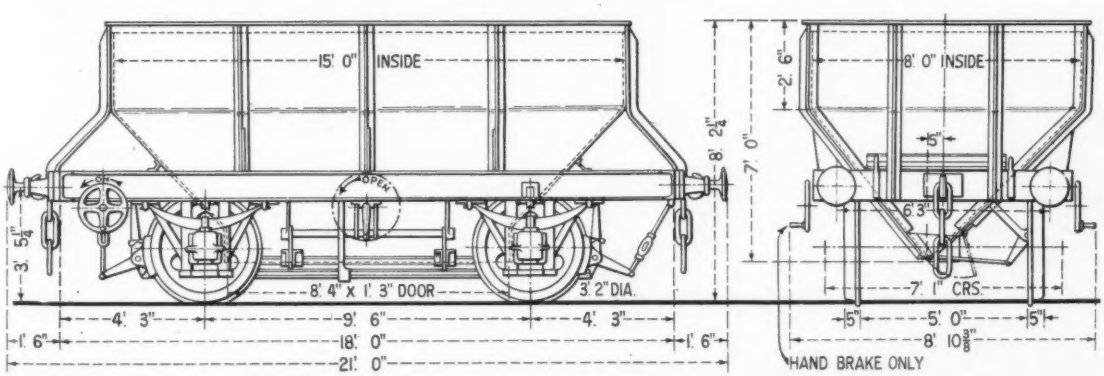


SIX wagons for gypsum traffic have been built recently at the Dundalk Works of the Great Northern Railway (Ireland). As will be seen from the illustration and diagram these wagons are of all-steel construction.

The wagons, which have a capacity of 526 cu. ft., or 20 tons, are being used for the conveyance of gypsum to cement works at Drogheda. The bottom discharge outlet, which is controlled by a hand wheel each side, deposits the gypsum on to an underground conveyor at the works, thus saving time and labour and improving the turn-round of the wagons.

The latest type of R.C.H. buffer coil spring is fitted; it has a strength of 8 tons when home with a stroke of 4½ in. A hand screw brake only is fitted each side, but provision is made for the fitting of vacuum brake should this be necessary later.

The tare weight is just over 8 tons.



Diagrams showing general dimensions of the hopper wagons

L.N.E.R. Standard First Class Coach

New design for post-war travel

THE L.N.E.R. has just completed and put into traffic a first class corridor coach of steel and timber composite construction incorporating a new layout which is to be standard for future vestibuled corridor stock. The new layout, which has been adopted at the suggestion of Sir Charles Newton, Chief General Manager, L.N.E.R., divides the coach into three sections of two compartments each by means of two transverse passages connecting the two pairs of entrance doors.

The advantages of this arrangement over the customary end-door type corridor coach are five-fold, namely: (i) the average distance between door and seat is very much reduced;

(ii) except in the case of the compartments at each end of the coach, the movement between door and seat may be made without passing another compartment, and in the case of the end compartments only one other compartment need be passed;

(iii) the transverse passages provide convenient passing places for travellers proceeding along the corridor in opposite directions;

(iv) congestion on the platforms is reduced when passengers are entering and alighting from the train; and

(v) greater privacy is afforded around the toilet compartments at each end of the vehicle.

Summed up, the new coach layout greatly facilitates the entry, exit and inside movement of passengers, and it locates the toilets well away from the coach doors at which passengers tend to stand. A train of these new coaches will also distribute the process of detraining and entraining evenly along its length.

LNER

This corridor coach No. 1531 in which you are travelling is the forerunner of many similar vehicles the L.N.E.R. is to build after the war.

Certain novel features designed to increase your comfort and convenience have been embodied and these include

1. Four entrance doors, connected by transverse passages, dividing the coach into three sections. The advantages of this arrangement over the end-door coach used hitherto are five-fold, namely:

- ★ the average distance between door and seat is very much reduced.
- ★ except in the case of the compartments at each end of the coach the movement between door and seat may be made without passing another compartment, and in the case of the end compartments only one other compartment need be passed.
- ★ the transverse passages provide convenient passing places for travellers proceeding along the corridors in opposite directions.
- ★ congestion on the platforms is reduced when passengers are entering and alighting from the train.
- ★ greater privacy is afforded around the toilet compartments at each end of the vehicle.

2. The windows are 3 inches deeper and 6 inches wider than usual so as to give you a better view of the scenery en route, whilst on the corridor side the pillars between the outside windows are now placed opposite the partitions dividing the compartments so as to give an unrestricted view across the corridor.

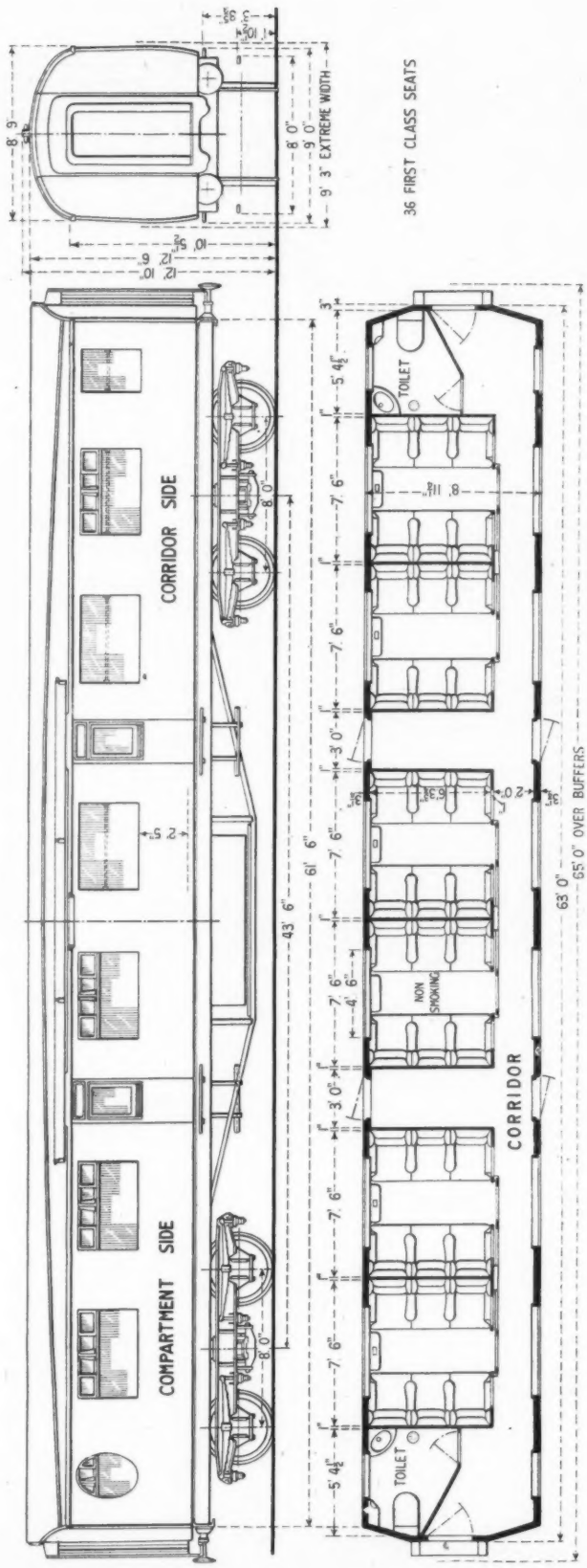
As new materials in the way of upholstery become available every endeavour will be made to select the most attractive patterns for use in the new coaches.

It is hoped that this new design of coach will meet with your approval.

Temporary address
The Hoo,
Whitwell, Herts

CHARLES H. NEWTON,
Chief General Manager.

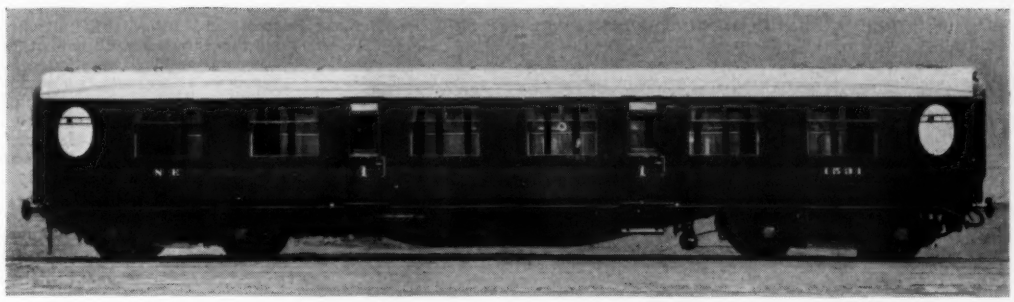
Handbill distributed to passengers using the coach



Diagrams showing general arrangements and dimensions of the new L.N.E.R. standard first class coach for post war use

(*See also illustrations on opposite page*)

L.N.E.R. Standard First Class Coach



General view of compartment side of L.N.E.R. post-war prototype of first class corridor coach

Left: Transverse passage between compartments and connecting the pairs of entrance doors
Right: General view of the interior of one of the compartments in the coach

The new coach contains six compartments, each measuring 7 ft. 6 in. between partitions, and accommodates 36 passengers. It is fitted with buck-eye couplers, and weighs 33 tons.

The view from the compartments has been improved in two ways, namely, (i) the outside windows are 3 in. deeper and 6 in. wider than the previous standard, and the sill is lowered to 29 in. from the floor, and (ii) on the corridor side the pillars between the outside windows are now placed opposite the partitions dividing the compartments so as to give an unobstructed view across the corridor.

Sliding shutter-type ventilators are fitted in each compartment and in two of the corridor windows. The toilet-compartment windows, which become the end windows, are oval, and each is provided with a sliding shutter ventilator.

The bogies under the first coach to be built are the L.N.E.R. pre-war 8-ft. 6-in. standard.

The internal fittings and trimmings of the coach naturally are of pre-war standard. They will be replaced by the latest in post-war design as soon as materials become available.

The coach made its initial run on the 12.45 p.m., Kings Cross to Edinburgh express on January 11, and among those who inspected the coach before its departure were :—

Sir Ronald Matthews, Chairman, London & North Eastern Railway Company; Sir Charles Newton, Chief General Manager, L.N.E.R.; Sir James Milne, General Manager, G.W.R.; Sir William Wood, President, L.M.S.R.; Mr. G. Cole Deacon, Secretary, R.E.C.; the following officers of the L.N.E.R.: Messrs. E. Thompson, Chief Mechanical Engineer; J. C. L. Train, Chief Engineer; George Mills, Divisional General Manager, Southern Area; V. M. Barrington-Ward, Assistant General Manager (Operating); W. H. Johnson, Secretary; C. P. Hopkins, Assistant to Chief General Manager; J. Ness, Assistant to Chief General Manager; C. Dandridge, Passenger Manager, Southern Area; H. C. Johnson, Assistant Superintendent (Western Section), Southern Area; George Dow, Press Relations Officer; and L. H. K. Neil, Continental Traffic Manager; and Messrs. Richmond Temple, J. A. Kay (Editor, *The Railway Gazette*); C. F. Klapper (Acting Editor, *Modern Transport*).

ARGENTINE PENSION DECREE SUSPENDED.—A recently-issued Argentine Government Decree suspends the application of Decree No. 15,097, governing permits for beneficiaries of Argentine pensions. Under the terms of the original decree such beneficiaries residing abroad were to suffer a progressive reduction, and the ultimate loss of their pensions after five years' absence from Argentina. A preamble to the new Decree states that the moment is inopportune to apply dispositions governing foreign residence in present circumstances, when reasons of international order prevent a return of pensioners to Argentina to comply with the conditions of the suspended Decree. The preamble adds that the new Government measure is based on the principles of human understanding, and that, as long as wartime circumstances continue, it is desirable to suspend application until a more propitious time.

LONDON TRANSPORT SALVAGE.—About 700 tons of waste paper, including 406 tons of used tickets, were salvaged by London Passenger Transport Board during 1944.

XUM

G.W.R. Central Enquiry Bureau, Paddington

Organisation which has enabled the expeditious answering of 7,000,000 travel questions

During "imminent danger" the service continued—under the counter

SINCE the outbreak of war the Great Western Railway Central Enquiry Bureau at Paddington has now answered some seven million enquiries on every kind of travel topic. The busiest month on record was last July, when the bureau staff reeled off replies to 166,331 enquiries. This is an average of 5,365 transactions a day. The heaviest single day was a Friday last June, when 7,402 enquirers sought and obtained information. Over the whole period of the war, the daily average, including Sundays, works out at 3,600 enquiries, a figure considerably more than double the pre-war daily rate.

Travel questions relating to all other main-line companies, and the London Passenger Transport Board services as well, are freely posed to the Paddington bureau, and are as readily and painstakingly answered as those which affect Great Western journeys and facilities.

The telephone-enquiry section of the bureau is staffed entirely by women clerks who are recruited mainly from girls of sixteen years of age, straight from secondary or commercial schools. On engagement they are sent to school again, but this time their classroom is in the bureau itself. Their tutors are chosen for three distinct kinds of qualification. Advanced knowledge of the theory of the subjects they teach is essential; but the instructors are people also who have achieved personally outstanding success in the practical work which their pupils hope later to undertake. Lastly they possess that rare gift of being able to impart their own skill to others.

Before any girl readily can tell an enquirer how to get to X—, she naturally needs to know just where X— is, or how to find out in a flash. So railway geography is one of the first few subjects on her study list, and many a girl has learnt more about "where's where" in Britain during her first month in the bureau classroom that she could remember from all her pre-Great Western schooling.

Reading a railway time table aright is rarely an inborn gift. At the bureau school *Bradshaw*, the *A.B.C.* and the companies' own timebooks become well-thumbed textbooks. Compilation of fares, excess and inter-availability regulations, and the thousand-and-one other branches of general railway knowledge liable to be tapped in an average day's enquiry work, all find a place in the curriculum.

Question papers are set each day to test the progress every girl has made, and the corrected answers alone are of great value as an accumulating body of revision material.

The course usually proceeds for three or four months before a student is sufficiently advanced to be tried out on a public telephone enquiry line, monitored by a supervisor. All the enquiry lines pass through a master switchboard, so that the supervisor can switch in and listen to each question and answer on the probationer's line: be ready with a nod of approval if it is earned, a word of prompting to smooth out a difficulty, or a quick correction of any error made through lack of experience.

The staff is not encouraged to quote information from memory; it is expected to refer to its books in every instance. Memory can play one false, and minor alterations are constantly being made in services. In addition to the printed books, amended as necessary, the girls are supplied with indexed note books in which special information is copied for ready reference. They try to avoid the use of railway technical terms for fear of confusing the uninitiated; but many of the public seem to take a delight in collecting specimens of the railwayman's working vocabulary.

The bureau is open from 7 a.m. to 11 p.m. daily, and full service to the public has been maintained throughout air raids, with the only difference that during "imminent danger" periods the work, instead of remaining "above board," is switched to an "under the counter" service. Each girl curls up on her little enquiry mat in the kneehole space under her desk, perches her telephone on a half pulled-out drawer, and carries on with her service.

For the foregoing information and the accompanying illustrations, we are indebted to *The Great Western Railway Magazine*.

A general view of the telephone enquiry section of the bureau at Paddington, G.W.R.

RAILWAY NEWS SECTION

PERSONAL

In view of Sir Frank Nixon's preoccupation as a Joint Managing Director of the United Kingdom Commercial Corporation Limited, Mr. E. C. Adams has been appointed to act as head of the Export Credits Guarantee Department with effect from January 1. Sir Frank Nixon continues as a member of the Advisory council.

Sir Louis Kershaw has been elected a Director of the Barsi Light Railway Co. Ltd., in place of Major-General Sir H. F. E. Freeland, who has retired on account of ill-health. Sir Louis Kershaw is a Director of the Bengal-Nagpur Railway Co. Ltd.

Mr. W. T. James has been appointed Chairman of Hebble Motor Services Limited and of the Yorkshire Woollen District Transport Co. Ltd., in succession to Mr. J. S. Wills, who has resigned from the boards of those companies on account of pressure of other work. Mr. C. D. Stanley has been appointed a Director of Hebble Motor Services Limited, and Mr. R. W. Birch a Director of the Yorkshire Woollen District Transport Co. Ltd. Both companies are members of the British Electric Traction group.

Mr. T. F. Cameron, Assistant General Manager (Works & General), L.N.E.R. (Acting Divisional General Manager, Scottish Area), has resigned from the boards of Hebble Motor Services Limited, Yorkshire Woollen District Transport Co. Ltd., Lincolnshire Road Car Co. Ltd., and Yorkshire Traction Co. Ltd. He has been succeeded as a Director of the two first-named companies by Mr. C. P. Hopkins, Assistant to the Chief General Manager, L.N.E.R., and as a Director of the last two by Mr. J. Ness, Assistant Divisional General Manager, North Eastern Area, L.N.E.R., who is acting temporarily as an Assistant to the Chief General Manager.

The following officers of the L.M.S.R. have been appointed to succeed Mr. H. V. Mosley (lately Chief Executive Officer for New Works & Parliamentary Business, L.M.S.R.) on the boards of the companies indicated (in addition to the appointments given last week):—

Mr. G. L. Darbyshire (Vice-President): Hebble Motor Services Limited and Yorkshire Woollen District Transport Co. Ltd.

Mr. F. A. Pope (Chief Commercial Manager): East Midland Motor Services Limited and North Western Road Car Co. Ltd.

Mr. George Morton (Chief Accountant): Ribble Motor Services Limited and Yorkshire Traction Co. Ltd.

Mr. John Shearman (Road Motor Engineer): Crosville Motor Services Limited and Cumberland Motor Services Limited.

Mr. W. P. Bradbury (Assistant Chief Commercial Manager, Outdoor): Eastern Counties Omnibus Co. Ltd., Lincolnshire Road Car Co. Ltd. and West Yorkshire Road Car Co. Ltd.

Mr. Augustus Percival Reynolds, who, as recorded in our January 5 issue, is the first Chairman, for a five-year period from January 1, of the new amalgamated transport company, called the Irish Transport Company (Córas Iompair Eireann), formed by the amalgamation of the Great Southern Railways Company (Eire) and the Dublin United Transport Co. Ltd., which came into existence on January 1 last, under the provisions of the Transport Act, 1944, has been Chairman of the Great Southern Railways Company since early in 1942, and Managing Director of the Dublin United Transport Co. Ltd. since 1941. Mr. Reynolds is an accountant by profession. He was born in 1895, and was educated by the Christian Brothers at O'Connell Schools, Dublin. He joined the firm of John R. Reynolds & Company, and later became Senior Partner in Reynolds, McCarron & Company. He was interested in road and air transport, and became Managing Director of the General Omnibus Co. Ltd., the largest of the independent Dublin bus concerns which were acquired when a monopoly of passenger transport in the city was granted to the Dublin United Tramways Co. (1896) Ltd., now the Dublin United Transport Co. Ltd. In 1936 he was appointed General Manager of the tramways company, and he became Managing Director of the Dublin United Transport Co. Ltd. in 1941; and he was appointed Chairman of the Great Southern Railways Company early in the next year. He was a member of the Government Advisory Committee on Aviation, and was associated closely with the establishment of the first regular air services between Ireland and England. He was a Director of Aer Lingus Teoranta (Irish Air Lines) and other companies. Mr. Reynolds is Deputy-Chairman of the Fishguard & Rosslare Railways & Harbours Company. He is a Governor of Jervis Street Hospital and in 1941 became a Director of the Guild of Goodwill, which was formed in that year to meet wartime difficulties by the production and distribution of food and fuel on a non-profit basis. He is well-known on the Irish Turf and is interested in contemporary Irish art.

Lafayette [*Dublin*

Mr. A. P. Reynolds

Chairman of the Irish Transport Company

Irish Transport Company Chief Officers

The following chief officers of the Irish Transport Company have been appointed:—

General Manager: Mr. E. C. Bredin (formerly General Manager, Great Southern Railways).

Assistant General Manager: Mr. Frank Lemass (formerly Secretary & Accountant, Dublin United Transport Co. Ltd.).

Secretary: Mr. H. G. Boardman (formerly Secretary, Great Southern Railways Company).

Traffic Manager: Mr. D. Stewart (formerly Acting Traffic Manager, Great Southern Railways).

Chief Accountant: Mr. F. H. Hartnell Smith (formerly Accountant, Great Southern Railways).

Chief Engineer: Mr. Gerald J. Murphy (formerly Chief Engineer, Great Southern Railways).

Señor Atanasio Iturbe, Chairman of the local board of the Central Argentine Railway Limited, has retired. He is succeeded by Dr. Agustin Nicolas Matienzo, a member of the board. Mr. A. M. Dinwoodie, Secretary of the local board, also has retired, and has been succeeded by Mr. W. C. Dansey, Administrative Representative.

Mr. F. G. Bristow has been appointed Director, and Mr. G. W. Quick Smith, Secretary, of the National Road Transport Federation.

Mr. William G. Davis, Representative for many years for Scotland and Ireland of W. R. Sykes Interlocking Signal Co. Ltd., retired on December 31. Mr. Davis, who was particularly well known in signalling circles in Scotland, entered the service of the late Mr. W. R. Sykes in 1888, and had been associated with the fitting of the Sykes lock-and-block on several railways as well as the electro-mechanical signalling on the G.S.W.R.; he was responsible for a large amount of track-circuit work on the N.B.R., and token switching equipment, and carried out similar installations in Ireland. He also supervised the fitting of electro-mechanical signalling on the B.C.D.R., and automatic and semi-automatic signals, the latest installation including special large-sized "banner" signals with night colour-light indications, worked on the "normal danger" principle, one of the very few instances of its application to such work in the United Kingdom. Mr. Davis enjoyed the high regard of all with whom he was associated, and had spent the remarkable period of 56 years in signal work with on undertaking.

Mr. W. Cyril Williams, A.M.Inst.C.E., M.I.Mech.E., M.I.Loco.E., M.Inst.T., who, as recorded in our January 12 issue,

Elliott] [& Fry

Mr. W. Cyril Williams

Who has been elected a Director of Beyer, Peacock & Co. Ltd.

has been elected to the board of Beyer, Peacock & Co. Ltd., is very well known in the railway world. Mr. Williams commenced his railway work in 1906, with a five-year apprenticeship with the Natal Government Railways. His training included periods in the running sheds and the Signal Department, and footplate experience, concluding with some years in the Drawing Office. During the period of his training he attended the Durban Technical Institute, and obtained the Abe Bailey Scholarship in 1909, the James Brown Exhibition in 1910 and the Institute Scholarship in 1911. In 1912 he became for a short time a lecturer at the Institute. In 1913 he was appointed a junior engineer to the Chief Mechanical Engineer at Johannesburg. During the war of 1914-18 Mr. Williams held a commission in the South African Engineer Corps and served through the campaign in German South West Africa. At the conclusion of operations there, he held the rank of Assistant Superintendent (Mechanical), with the rank of Captain in the Railway Regiment. He then went to France in the Royal Engineers, and was promoted Captain in the field when holding the appointment of Army Locomotive Superintendent. In 1919 Mr. Williams went to the U.S.A. and Canada on behalf of the South African Railways, and was engaged on the inspection of locomotives and wagons, which had been ordered in those countries. On his way back to South Africa he spent a short time in the office of the Advisory Engineer in London, and eventually returned to duty in South Africa on the staff of the Assistant General Manager at Durban. He was later responsible for carrying out locomotive tests and general research work for the S.A.R. Mechanical Department. In 1923 he joined Beyer, Peacock & Co. Ltd. as its London Representative, a position he has held until the present time, although in 1938 he was designated Sales Director. During his 23 years with Beyer, Peacock & Co. Ltd. he has become known all over the world for his knowledge of locomotives and railway operation generally. In promoting business for his company, he has visited railways in many parts of the world, obtaining first-hand experience of their conditions, and, during the past decade, has travelled some 250,000 miles in overseas tours. Mr. Williams continues in his position as Sales Director. During the present war he has given valuable assistance in connection with war transport. Mr. Williams is a Member of Council of the Institution of Locomotive Engineers, and a Fellow of the Royal Geographical Society.

We regret to record the death, at the age of 76, of Mr. E. G. Brownbill, Chairman of the Liverpool Overhead Railway Company, and a member of the Mersey Docks & Harbour Board.

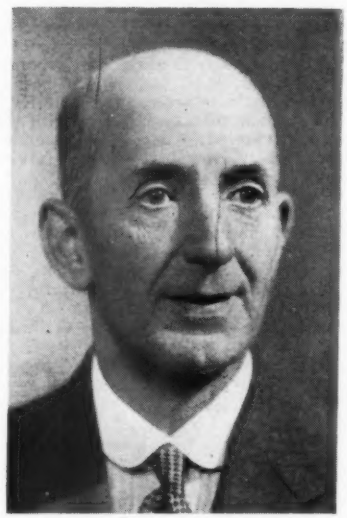
Mr. Howard P. Robinson has been elected a Director of the Canadian Pacific Railway Company. Mr. Robinson is on the board of the Royal Bank of Canada.

We regret to record the death, at the age of 71, of Colonel T. H. Hawkins, C.M.G., who was Assistant General Manager of the Mersey Docks & Harbour Board from 1933 to 1938.

Sir Clive Baillieu, at present Deputy-President of the Federation, has been nominated for election as President of the Federation of British Industries for the ensuing year. Sir Clive Baillieu returned to Great Britain in 1943 from the U.S.A., where since 1941 he had been Director-General of the British Purchasing Commission. He represented the F.B.I. at the recent International Business Conference in the U.S.A., and was Chairman of the committee on cartels. He is a Director, among other companies, of the Dunlop Rubber Co. Ltd. and the Midland Bank Limited.

Mr. G. M. Booth, who has been appointed Stationmaster, Liverpool Street, L.N.E.R.

Mr. C. Marsden, who, as recorded in our January 5 issue, has retired from the position of District Engineer, Irvine,



Photo] [Lafayette

Mr. C. Marsden

District Engineer, Irvine, L.M.S.R., 1932-44

L.M.S.R., joined the former L.N.W.R. in the drawing office of the District Engineer, Crewe, in 1899. He became Chief Draughtsman in that office in 1914. In 1928 he was appointed Assistant District Engineer at Crewe, and in 1931 he was transferred to Edge Hill, Liverpool, in the same capacity. Mr. Marsden was appointed District Engineer, Irvine, a year later.

Dr. H. E. Moore, Medical Officer, Crewe, L.M.S.R., has been made an O.B.E. in recognition of rehabilitation work.

Reuters reports from Lisbon that Senhor Joaquim Paco d'Arcos, Press Officer of the Portuguese Foreign Office, has been appointed the Portuguese Government's nominee on the board of the Trans-Zambesia Railway Co. Ltd.

Mr. G. M. Booth, Acting Assistant District Superintendent, Lincoln, L.N.E.R., who, as recorded in our issue of December 8 last, has been appointed Stationmaster, Liverpool Street, commenced his railway career as a junior clerk in the District Superintendent's Office, Marylebone, G.C.R., in 1918. He subsequently served as a clerk in the Statistical Section, and later entered the Chief General Manager's Office, Kings Cross, L.N.E.R. In 1927 he was appointed a traffic apprentice, after passing the company's examination, and received all-round traffic training for three years. In February, 1930, he became Assistant Yardmaster, Carlisle, and in August of the same year entered the District Superintendent's Office, Edinburgh. In January, 1932, he went to the Superintendent's Office, Edinburgh, and in October of that year became Assistant Yardmaster, Spitalfields. Thereafter he received the following appointments:—Assistant Stationmaster, Liverpool Street (1935); Stationmaster, Bethnal Green (1936); Stationmaster, Ilford (1937); Stationmaster, Ipswich (1940); Assistant to District Superintendent, Norwich (1941); and Acting Assistant District Superintendent, Lincoln (January, 1944).

TRANSPORT SERVICES AND THE WAR—277

Conductors as Drivers

During the year 1944, London Transport trained 760 male conductors to drive road transport vehicles.

Special L.M.S.R. Trains in 1944

The L.M.S.R. ran no fewer than 27,850 special troop trains in 1944. In the same period 16,811 Forces stores trains, 3,160 ammunition trains, 8,649 petrol trains, and more than a thousand special trains conveying Forces Mail were also run. The total of special L.M.S.R. trains last year was 57,620.

Staggering Working Hours

Schemes of staggering working hours in the London Transport area are now in operation in 1,200 industrial firms, and affected 560,000 employees during 1944. Under the auspices of the London & South Eastern Regional Board, 53 local transport groups have been established. Earlier reference to this method of reducing traffic peaks was made in an editorial article in our issue of November 17 last, page 476.

Birkenhead Buses for Forces

At 2 a.m. on January 2, the Birkenhead Corporation inaugurated a night bus service for Service personnel who live in the borough, and who arrive at Lime Street Station, Liverpool, after the ordinary conveyances have left. It leaves Lime Street at 2 a.m., 3.15 a.m., and 4.30 a.m., passes through the Mersey road tunnel, and makes a circular trip through New Ferry, Port Sunlight, Prenton, Arrowe Park, and Charing Cross. The fare is 6d. a person. It may be recalled that a similar step was taken by Liverpool Corporation last August (see our September 1, 1944, issue, page 217).

Buffet Cars on Leave Trains

Since January 5 the L.N.E.R. has run a special train every day to the North of England and Scotland for troops returning on leave. The train consists of ten coaches and two buffet cars and runs direct from the port to Glasgow, calling at Doncaster, York, Darlington, and Edinburgh. The buffet cars are staffed by N.A.A.F.I. The L.N.E.R. is giving this special leave train a clear road to secure punctual running. To ensure that the troops get home without delay, the company has arranged for it to run ahead of the Flying Scotsman so as to enable use to be made of all the connections which are held for that train.

A return service began on January 13 and works similarly every day. It is also provided with two buffet cars.

Cheap Travel for Transferred Workers

The Minister of Labour & National Service has decided, in consultation with the Minister of War Transport, that the scheme for the provision of cheap travel warrants twice during the year to enable transferred workers to visit their homes at a cost of 7s. 6d. on each occasion may be continued. In future, however, travelling warrants will be provided at any time during the year instead of only during the months April to September inclusive, as hitherto; no warrants will be issued for travel at Easter, Whitsun, August, and Christmas holiday periods. The scheme will continue to apply, during periods of authorised absence from work, to workers who have been transferred to war work by the Minister of Labour & National Service on or after June 1, 1940, and for whom no similar provision is available under any industrial agreement or practice. The scheme does not apply to workers whose dependants are living in the area in which they are employed. Eligible workers receive warrants which they can exchange at the railway booking office for return tickets on payment of 7s. 6d.

Civilian Air Raid Casualties in December

The Ministry of Home Security has announced the following figures of civilian casualties due to enemy air action in the United Kingdom during the month of December:—

Killed (or missing believed killed)	367
Injured and detained in hospital	847

The casualties are classified as follow:—

	Men	Women	Under 16
Killed (or missing believed killed)	111	192	64
Injured and detained in hospital...	285	441	121

London Railway Bomb Damage

Although the British railways were always able to maintain essential services, they suffered to a more severe extent in the 1940-41 blitz than has been announced heretofore, but details of many interesting incidents were withheld for security reasons. In view of the relaxation of censorship, some of these have now been revealed in a statement made by the Railway Executive Committee on January 11, from which the following notes are extracted.

During the intensive nine months of bombing from September, 1940, to May, 1941, the Southern Railway by virtue of its geographical position suffered the most from aerial attack. In this period 92 incidents occurred affecting the running lines between Waterloo and Queens Road (2¼ miles), making it the most bombed section of line in London. Reference to this was made in *The Railway Gazette* of July 14 last (page 38), but it was not then permissible to indicate where this much-bombed section of line was located. Next most bombed sections were between Charing Cross, Cannon Street, New Cross, and New Cross Gate (5½ miles—123 incidents); and between Holborn Viaduct and Herne Hill (4½ miles—62 incidents).

On September 7, 1940, a heavy-calibre H.E. bomb fell on one of the up main lines at a point where there are 8 sets of lines, penetrated the viaduct, and exploded before reaching ground level. Three sets of lines were left spanning the crater, and 12 motor vehicles stored in the arches of the viaduct were completely wrecked. Within 10 hours two tracks furthest away from the crater were usable. Repair work went on day and night with the assistance of the Royal Engineers. On September 17 three more lines were opened to traffic and on September 25 another two. By October 1 this large viaduct had been repaired sufficiently to enable normal traffic to be resumed.

Southwark Street bridge, Southern Railway, between Blackfriars and Elephant & Castle, carries 4 electrified running lines and 5 others. During the night of Saturday, April 19, 1941, a bomb struck the bridge, completely destroying the main girders, which fell into the road taking the running rails, conductor rails, bridge decking, and three wagons with them. The site for 100 yd. both sides of the bridge was littered with debris and Blackfriars signal box was wrecked. An excavator was used for clearing the roadway underneath, and oxy-acetylene cutters separated the main girders into units which could be handled. A temporary bridge had been installed 15 days later, enabling traffic to be resumed.

In the early hours of October 16, 1940, a large bomb shattered the greater part of the 2½ acres of glass in St. Pancras station roof; platforms 1, 2, 3, and 4 were badly damaged, and Nos. 5, 6, and 7 were unusable because of the vast amount of debris covering them. The two signal boxes controlling all the St. Pancras traffic were damaged very extensively, and it was impossible to work trains from any part of the station. Emergency signalling had been installed by 6 a.m. the next day, and some trains were able to use the station. Repairs to the station structures were retarded through the danger caused by falling glass from the shattered roof, and it was necessary to clear the splintered pieces from the girder work. However, repairs had been effected to such an extent that normal working was resumed on November 3.

On November 16, 1940, an overbridge carrying Rose Lane, Berkhamsted, over the L.M.S.R. main London and Rugby line was struck by a high explosive bomb. At the moment of the explosion the 10 a.m. Glasgow to Euston express was approaching the bridge, and from the marks found on the engine afterwards it appeared to have struck the bridge as one of the main girders was falling. The girder was broken in two and each half was thrown some yards on either side of the line. The impact derailed the engine and first seven coaches of the train, which travelled nearly 200 yd. before coming to a stop. Sleepers were destroyed for a length of 250 yd. Fortunately there were no casualties either to train staff or passengers, and the damage to the train was not serious. Repair work was begun immediately, and the two fast lines were open for traffic within two days. The remaining two lines were reopened four days later.

Balkan Through Rates

Through railway passenger fares, and luggage and express goods rates, between Croatia and Slovakia were introduced on August 1 last.

Croatian Railway Administration

The administration of the Croatian State Railways was reorganised in accordance with the provisions of a Decree dated August 1 last. There is now one railway management at Zagreb and another at Sarajevo. The Central Railway Administration is at Zagreb, as well as the management of the State Road Motor Services.

Chinese Government Fares Subsidy

There is always a queue of men, women, and some children at practically all the bus stops in Chungking. Not infrequently some of them have to wait for half an hour or more before they can get on the usually crowded bus, and during especially busy periods of the day, at office closing hours, the bus queues sometimes extend for more than a quarter of a mile. The Chungking Bus Administration has a fleet of only 32 buses in service. The local buses operating on the four-mile suburban route are diesel-engined, and the express buses maintaining a circular route use alcohol for fuel; the eight-mile circular route requires on the average 50 min. a trip.

Despite the increasing price of fuel and high operating costs, the bus administration has not increased its fares for many months. The fare on the express bus—25 Chinese dollars for any distance—was fixed in January last, but the local bus fare was increased to 15 Chinese dollars in April. Fares collected cannot cover the overhead and operating expenses, and, during the first half of 1944, the Chungking Bus Administration had a total deficit of more than Ch.$41,300,000 (£516,250). A comparison of the operating costs for last June and the existing bus fares, shows that every city bus ticket meant a loss to the company of Ch.$10. Requests for further increases in bus fares were refused by the Government,

but the National General Mobilisation Council decided that, beginning in July, the Government would subsidise the bus administration. Taking the cost price of fuel for the month of May as the index, the amount of monthly subsidy was to be equivalent to the increase in the cost of alcohol and diesel oil. In addition, the Government appropriated forty million dollars to be used by the bus administration as a float.

After a joint conference with the Chungking Garrison Headquarters and other local authorities, the bus management decided in July to accord priority to military officers. All Chinese officers of General's rank, and all officers of the British and American Armed Forces; are allowed to board the buses before civilian passengers. Interpreters travelling with the Armed Forces are also allowed to board the bus before civilian passengers.

Maximum Speeds in Finland

A recent Decree of the Finnish Government provides for the reduction of the maximum permissible speeds of road motor vehicles as follow: private motorcars to 60 km.p.h. (37 m.p.h.); buses and delivery vans to 40 km.p.h. (25 m.p.h.); and lorries to 35 km.p.h. (22 m.p.h.).

Swedish Wagons Returned by Germany

It is reported that Germany is returning to Sweden 500 railway wagons borrowed in 1940. The shortening of the German lines of communication, and Germany's urgent need to improve diplomatic relations with neutrals may account for this.

Cost of Conveying Germans in Denmark

According to a report recently issued by the Danish National Bank, the Danish contributions in respect of the German occupation for the period April, 1940, to October 1, 1944, totalled Kroner 6,500,000,000, exclusive of certain additional items which in their turn aggregated Kroner 3,800,000,000. Among the latter is the amount of Kroner 158,000,000 which the Danish National Bank had to pay to the Danish State Railways for the free conveyance of German passengers and goods.

Norwegian Mineral Railway Gauge Mixed

A Reuters message dated December 28 says that, since the beginning of September last, the railway from the Orkla pyrites mines at Lökken to the port of Thamshavn (in the Trondheim neighbourhood) has been worked as a mixed-gauge line, a third single rail having been laid by the Germans to the standard gauge of 4 ft. 8½ in. alongside the old metre-gauge track, so that locomotives for both gauges can be used. The Germans have found great difficulty in replacing metre-gauge locomotives when they have been rendered unserviceable for any length of time by patriot activity. The mixing of the gauge of the Lökken-Thamshavn line would appear to indicate that the enemy is sparing no effort to secure the largest possible tonnage of pyrites from Orkla.

Swedish Railways During the War

A sharp decline during the war in the number of motor vehicles in operation has placed a heavy burden on the Swedish railways. Goods (exclusive of Lapland ore) carried by the railways increased by 92 per cent., from 3,925,000,000 ton-kilometres in 1937 to 7,560,000,000 ton-kilometres in 1943, it has been reported. Passenger-kilometres increased 85 per cent. from 1937 to 1942. This was due partly to the large military traffic and partly to a decrease in the use of road motor vehicles. In 1942 military traffic represented 32 per cent. of the total passenger traffic on the Swedish State Railways and 22 per cent. on the private railways. The main problem facing Swedish railways is fuel shortage, although the most important Swedish railway lines are electrified, and about 75 per cent. of the goods traffic is handled on these lines. Decreased imports of fuel have necessitated domestic production of substitutes, such as wood, peat, tar, alcohol, and shale oil, as well as intensified development of hydro-electric resources. Wood was first used in 1940 for the operation of about 20 per cent. of the steam-driven State Railway traffic in northern and central Sweden; in 1942, this percentage had increased to 60, and a total of 1,562,353 metric tons of wood was consumed. Consumption of peat has also increased, amounting to 53 metric tons in 1939 and 43,934 tons in 1942. Very little liquid fuel is now used by the railways, as most of the railcars and other motor-driven vehicles have been converted to producer-gas operation.

Swedish Transport and Fuel

As a result of the virtual stoppage of trade between Sweden and Germany, the import of coal and coke from Germany, Sweden's only supplier in war time so far as these commodities are concerned, has been discontinued. In 1944, German coal and coke imports into Sweden totalled 3,500,000 metric tons, compared with 4,800,000 metric tons in 1943, while the Swedish fuel requirements as expressed in hard coal calorific value aggregate some 11,000,000 metric tons per annum. The Swedish emergency fuel scheme covering 1945 and 1946 envisages a drastic curtailment of the fuel consumption generally. The stocks of coal accumulated in past years, and which are said to be sufficient for a whole year, will have to be used, and at the same time the consumption of wood as substitute fuel is to be increased. The realisation of this scheme means an increase in wood felling from 1,553,948,000 cu. ft. per annum (as at present) to 1,765,850,000 cu. ft. per annum in 1945 and 1946 (44,000,000 and 50,000,000 cu. metres respectively). In the main, coal is to be assigned to industry only, and the consumption of gas rationed. Stocks of firewood at July 1, 1944, were 2,324,871,000 cu. ft. (63,000,000 cu. metres), compared with 2,119,020,000 cu. ft. (60,000,000 cu. metres) a year previously. The fuel scheme will be possible only if the necessary transport is available. The railways will be required to convey 459,121,000 cu. ft. (13,000,000 cu. metres) of wood, a task which will need the employment of 1,180 wagons a day, the equivalent of some 30 fully-laden wood trains a day.

A.R.P. Relaxation in New South Wales

As a result of the relaxation of A.R.P. regulations in Australia, because of the improvement in the Pacific situation, steps were taken on the New South Wales Railways throughout the twelve months ended June 30 last to effect restorations wherever possible, at the same time maintaining those measures considered necessary to safeguard the staff in the event of an enemy raid. In locations where trenches were likely to become a menace to health, approvals to back-filling were given. In addition, some trenches were interfering with efficient working and in such cases restorations were carried out. Baffle walls were demolished wherever they proved inconvenient or costly to maintain.

In general, normal lighting was restored throughout the railway service, and a steady policy was maintained in this respect from the time when the appropriate authorities first permitted any relaxation of the restricted lighting regulations.

The 24-hour staffing of the Railway Post in the N.E.S. Control Centre, which was carried out in non-working hours by volunteers from the female staff of metropolitan offices, was discontinued, but constant liaison was being maintained between railway officers and the N.E.S. Control.

At the beginning of 1944, arrangements were made for the gradual return of equipment issued for N.E.S. purposes. The work proceeded in a manner calculated to interfere as little as possible with ordinary railway routine.

Conveyance of Defence Forces in New South Wales

Special trains operated by the New South Wales Government Railways during the financial year ended June 30, 1944, for the transport of military personnel travelling to and from camps, on leave, and to and from forward areas numbered 3,743, which was an increase of 175 compared with the previous year. There has been a steady growth in the numbers of personnel transported during the past four years, as the following figures indicate:—

1940-1941	250,000
1941-1942	500,000
1942-1943	1,250,000
1943-1944	1,705,000

A very large percentage of military movement was from border to border of the State and, in consequence, there were most consistent and heavy demands upon the coaching rolling stock. Mileage run by the two ambulance trains in use totalled 74,363, compared with 42,994 in the previous year. During the period under review two additional goods brake vans were converted to power vans for use on these trains.

U.S.A. Army Transport Takes Fare-Paying Passengers

From January 1, in accordance with an announcement of the U.S. War Department made on December 20, the world-wide facilities of the Army Air Force Air Transport Command, established to expedite the conveyance of important personnel and urgent cargo to the war fronts, have become available upon payment, on a limited scale, to U.S.A. civilians when their business is deemed by the State Department to be important to the nation's interest. State Department certification as to the legitimacy of individual cases of civilian air travel has to be submitted to the Air Transport Command for consideration in establishing priorities for these passengers. Civilians will not be carried when their transport would interfere with or delay military personnel or cargo.

Those whom the State Department sanctions for overseas air transport will be conveyed by the military system only when U.S.A. commercial airline facilities cannot fill the need. The fares charged for such travel are to be not less than the current U.S.A. commercial airline rate for transport and accommodation of a comparable kind between corresponding points. The official announcement says that, in extending its services to certified civilians, the Air Transport Command will in no manner deviate from its regular routes, which were established for military purposes. These services will continue to be operated primarily to meet military requirements.

The Air Transport Command at present is operating over a system of more than 160,000 miles of routes, criss-crossing both the Atlantic and Pacific Oceans. It flies a direct route to Paris from the U.S.A., by way of Greenland, Iceland, and England. The Pacific airlines of the Command, including the longest over-water non-stop sections in the world, were lengthened recently by an 8,000-mile route to the Philippines, *via* Hawaii and Saipan.

Railway Restoration in Italy

Noteworthy work by the Royal Engineers, many drawn from peacetime railwaymen

It is probable that the weakness in the lines of railway communication in Italy is one of the vital factors in the progress, and delays, in the Allied campaigns there, for the railway destruction by the Germans seems to have been thorough.

It appears that most of the more acute railway transport problems in the area south of Rome have now been solved. To some extent this has been achieved by the process which the Americans call "cannibalisation," namely, the single tracking of what were formerly double lines, in order to make one effective single track out of the surviving equipment of a severely-damaged double-track line. Regular schedules are now in operation in the area south of Rome and the railway situation has been described as fair. Temporary bridges have been erected, and are still being built, and the armies are reported to be getting their material by rail satisfactorily to the fighting areas. The problems and objectives of transport in Southern Italy are :—

1. The release of more railway tonnage by the military authorities for civilian purposes ;
2. The restoration of basic transport facilities for imported fuel, maintenance equipment, tyres for motor vehicles, and animals ;
3. The repair of bridges and roads—a problem of internal administration which is being retarded in part by lack of machinery.

At present, priorities for railway transport are as follow :—

1. Military shipments ;
2. Purely Allied Control Commission shipments ;
3. Civilian shipments sponsored by the A.C.C. ;
4. Ordinary goods on a commercial basis.

A prominent part in the restoration of the Italian State Railways has been taken by the No. 150 Railway Construction Company, Royal Engineers. This company originated as a platelaying unit in 1925. It was fully mobilised in 1939 and accompanied the British Expeditionary Force to France, where it did valuable work. At one time, the unit was composed entirely of railwaymen, but today only about 30 per cent. of the personnel are peacetime railwaymen. These were former employees of the L.N.E.R., drawn from all parts of the system. British military authorities still regard as secret the actual locations of many of the spectacular achievements of this Railway Construction Company, which is at present operating in Italy, but they state that its log provides a vivid narrative concerning British sappers who restored a railway system from the ruin and rubble of war-ravaged tracks, bridges, stations, locomotives, and rolling stock. Although bridging has provided the major problem, blocked tunnels have also proved substantial obstacles. In some cases temporary diversions of the line have been built, to enable trains to be worked through while major repairs were being completed. One of these diversions carried the railway around a blocked tunnel, and enabled extensive repairs to the tunnel to proceed without interruption ; the line was then switched back to the better gradient which the tunnel afforded, and the diversion closed.

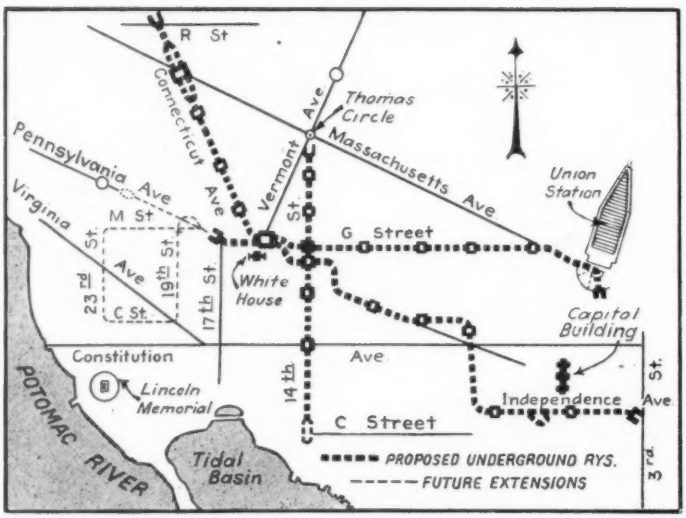
Lattice-girder railway bridge, built by the Royal Engineers on the old stone piers, across the River Volturno, near Cancello, on the Rome-Naples main line

Another view of the bridge across the River Volturno. The inscription bears the name Griffin Bridge, and states that it was constructed by the No. 150 Railway Construction Company, Railway Engineers, in May, 1944

A good example of the bridging work undertaken by the Royal Engineers is provided by the bridge reconstructed over the River Volturno, near Cancello, on the Rome-Naples main line, of which we reproduce two illustrations. This bridge had been completely destroyed with the exception of the foundations of the stone piers, which were intact. On these foundations the piers were reconstructed, and on them a lattice-girder bridge about 400 ft. long was erected. The inscription seen in the illustration alongside bears the name Griffin Bridge and states that it was constructed by the No. 150 Railway Construction Company, Royal Engineers, in May, 1944.

It would appear that civilian traffic is now carried by the principal railways in the south of Italy up to Rome on the west, and Ancona on the east coast, although routing is still far from normal. North of the Rome-Ancona line, skeleton services to Rimini, Florence, and Pisa are made available for limited essential civilan traffic as opportunity offers.

Underground Railway System Proposed for Washington



An underground railway system 7 miles long and expected to cost more than $56,000,000 has been recommended for Washington, D.C., by the J. E. Grenier Company, Baltimore, Md., and De Leuw, Cather & Co., Chicago, Ill., consulting engineers engaged early in 1944 by the Director of Highways to study the transport problems of the District of Columbia. Single trolley cars of the type used at present on the surface tramways of the city would be used, and connections would be provided between the underground and surface tracks, the trolley tramcars simply going underground when using the underground lines.

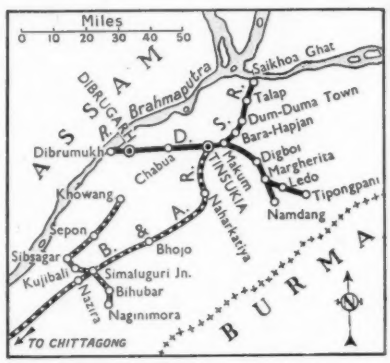
The accompanying sketch map shows the layout of the proposed system. It would include a 3-mile line running from Union Station to R Street, N.W., north of Dupont Circle, a 2¾-mile section along Pennsylvania Avenue connecting the Capitol with the White House, and 1¼-mile line running along 14th Street, N.W., from C Street, S.W., to Thomas Circle.

Stations would be located about every three blocks along the lines. Transfers would be allowed between all three sections. The planned underground schedule provides for an average speed of 16 m.p.h. This rate is expected to result in a time saving in the rush-hour period of 50 to 75 per cent., based on a survey made in June, 1942. The proposed underground railways, for which financing arrangements are not complete, are part of a large number of transport improvements recommended by the consulting engineers for Washington. The other proposed constructional works are highways.

The Dibru-Sadiya Railway

Conversations have been concluded recently between the board of the Assam Railways & Trading Co. Ltd. and the Government of India with respect to the sale of the railway, have resulted in an offer from the Government to purchase the railway at the close of business on March 31, 1945, for the sum of £1,770,000. This sum does not include the interests of the company in subsidiary and other companies, and its collieries, saw mills, veneer mills, brickworks, and so forth. It includes the whole of the railway undertaking, including the stock of stores carried in connection therewith. The directors recommend the shareholders to accept the offer.

Application of the proceeds of the sale is governed by the Act of Parliament of the company, and the board states that it is difficult to estimate the total resources which will be available as a result of the sale. It expresses the view, however, that it will be able to propose repayment of the debentures (£1,000,000) and of the 8 per cent. pre-preference shares (£80,000) and the 6 per cent. preference shares (£150,000). The cash available for the repayment of 8 per cent. "A" stock



The Dibru-Sadiya Rai way of the Assam Railways & Trading Co. Ltd.

(£630,000) would probably be insufficient without borrowing to pay off both capital and arrears in full; since 1931 the only dividends paid on the "A" stock have been 4 per cent. in 1938 and 1939.

The Assam Railways & Trading Co. Ltd. was formed in 1881. Its railway interests consist of 112 miles of metre-gauge line, which since April, 1942, have State Railway Administration. The been worked by the Bengal & Assam Government of India naturally took over wartime control, as this system, the Dibru-Sadiya Railway, is the nearest to the Assam-Burma frontier. It was briefly described in our issue of May 28, 1943, page 543.

Norwich City (L.N.E.R.) Station Improvements

The old M. & G.N.R. Norwich City Station buildings were demolished by enemy action in 1942, and the present structure, shown above, is an experiment in adapting the L.N.E.R. precast concrete platelayers' hut to form the building. The only addition to the hut structure is a brickwork cone, built to enable the width of the building to be increased, and which at Norwich is used to form the ticket office and cloakroom

Co-ordinated Transport Services in Hyderabad

A "Railway Day" address by the President of the Nizam's Executive Council

On October 31, His Excellency, the President of the H.E.H. the Nizam's (of Hyderabad) Executive Council delivered an address at the War Services Exhibition to celebrate the occasion of "Railway Day."

He pointed out that they in Hyderabad had been first in the Indian field in the matter of co-ordination of rail, road, and air transport. He also underlined the fact that the State Railway had exerted the maximum of effort for the prosecution of total war in all these three forms of transport.

After alluding to the financial assistance rendered by the State and its people to the war effort, His Excellency mentioned that the State Forces had at present two infantry, one artillery, and two cavalry units serving outside the State, and their maintenance charges, amounting to Rs. 21½ lakhs (£161,250) a year, were borne by the State.

He then gave a brief historical review of the State railway—the largest in any Indian State—together with its ancilliary activities. The first section of line from Wadi to Secunderabad was opened in 1874, and the Hyderabad-Godavery Valley line was completed in 1900. In 1928, the Secunderabad-Dronachellam and Kazipet-Balharshah lines were opened for traffic. The railway system was purchased from the operating company by the Government in 1930, and placed under the authority of a board. Subsequently, the 110-mile Bidar-Purli section had been completed despite the economic depression.

An important landmark in the history of transport in the State was the inauguration of the State-owned road services in 1932, with 27 buses, a figure that had now grown to nearly 300; in addition, nearly 200 goods vehicles were now being worked over 4,000 miles of road. Some 2,500 employees were working on the road services, and last year over 17,000,000 passengers were carried.

Just before the war, commercial air services were inaugurated by the State and at the same time the co-ordination of all forms of transport under one administration was effected. Their development was interrupted only because the State recognised the paramount need for devoting its extensive ground and maintenance facilities to the war effort.

The Nizam's State Railway also gave the lead to India in providing facilities for third-class passengers, such as fans and the introduction, in 1939, of four air-conditioned diesel railcars. In the previous year a first class hotel was opened at Aurangabad, and since had been honoured by visits from the Viceroy and other distinguished visitors.

Despite the fact that the State Railway had sent part of its rolling stock to the Middle East war front and was faced with a serious shortage of important stores, it had handled a greatly increased traffic in the assistance of the war effort, amounting to nearly 100 per cent. heavier passenger and 50 per cent. more goods traffic in 1943 than in 1939. Meanwhile, a vast number of articles had been manufactured in the railway workshops for war purposes, and 5,000 driver-mechanics had been trained for the Indian Army. Airfields had been constructed and instructional flying undertaken. A Motor Transport Company also had been recruited.

The carriage of foodstuffs to railheads was now effected by six 16-lorry mobile units, each complete with drivers, maintenance staff, and tentage; three more were being formed.

Turning to the future, His Excellency said that railway extensions—in addition to those at present partly constructed—amounting in aggregate to some 500 miles were envisaged, and road passenger and goods services would be extended to cover adequately the whole of the Nizam's dominions; these entailed the use of about 1,000 vehicles. Door-to-door services also would be increased. Better rail passenger accommodation and more railcars would be provided, and commercial air services would be resumed. Another modern hotel was to be built, this time at Hyderabad. He concluded by expressing the thanks of the Government to the railway officers and staff for maintaining the public services through a period of severe strain.

WATER AND THE RAILWAY ENGINEER

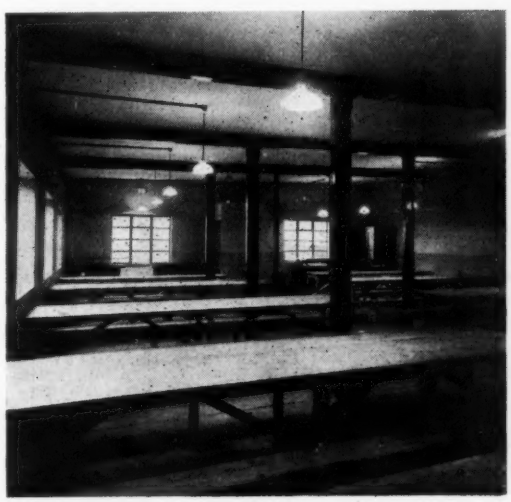
(*Continued from page* 61)

7 ft. of embankment were completely washed away, and the track carried up to 200 ft. out of position.

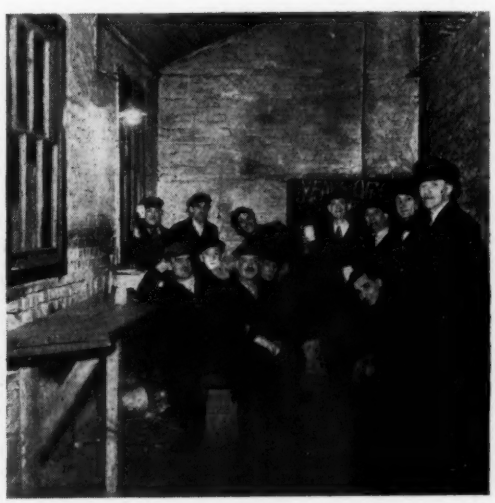
Early in 1929 a sudden emergency arose in the Severn Tunnel. It was reported that water was being forced through the brickwork in many places. The man who made the first examination reported that, over a distance of many hundreds of feet, jets of water, as big as his fist, were flying horizontally from one side of the tunnel to the other, 26 ft. away. Trains were still allowed to run with all windows shut. Above the tunnel at this place is 45-50 ft. of solid rock covered at high tide with 15 ft. of water, but uncovered at low tide. Searches by men walking in water at last revealed a whirlpool, and at low water a large fissure was disclosed. This was filled with cement in bags. All the work had to be done between tides, but finally a large area surrounding the fissure was covered with cement concrete in bags, and the fissure completely sealed.

This work, which is called "The Mushroom," is carefully examined yearly, and its condition noted. It was apparent that the flow of so much water must have carried with it some of the filling from the back of the tunnel rings, and it was decided to fill any voids with cement. A contract was arranged, and cement grout was forced through holes bored in the tunnel lining, over a length of one mile, until this condition was obtained. This work proceeded; it took two years to complete without interfering with railway traffic, and at present the conditions are satisfactory.

New Canteen at Bricklayers Arms, Southern Railway



The new canteen recently opened at Bricklayers Arms for Southern Railway employees



A view of the accommodation which has been replaced by the improved amenities

Notes and News

London Transport Staff Canteens.—During the year 1944, no fewer than 38,000,000 meals were sold to London Transport rail and road staffs at 152 canteens.

District Mechanical Engineers Required.—District mechanical engineers are required by the Iraqi State Railways, for three years in the first instance. For full particulars, see our Official Notices on page 75.

Traffic Inspector Required.—A traffic inspector is required by the Nigerian Government Railway for the duration of the emergency or one tour of 12 to 24 months, whichever is the shorter period, with possible permanency. For full particulars, see our Official Notices on page 75.

Transport Amalgamation in Manchuria.—The Japanese authorities are pursuing their policy of large-scale transport concentration in Manchuria, and it was recently reported that 107 road transport undertakings have been absorbed by the Hsinking Transport Company. Similar developments are expected in the neighbourhoods of Mukden, Harbin, and other large towns.

Southend Railway Travellers' Association.—It is reported that the Railway Travellers' Association at Southend is to be re-formed. Before the war there was a powerful travellers' association in Southend and district which facilitated the purchase of season tickets by its members, by collecting money from them weekly. It also represented their interests in endeavouring to secure improved facilities.

Producer-Gas Tractor.—One of the measures adopted by the Swiss Federal Railways to counteract the shortage of liquid fuels has been to convert several petrol-engined loco-tractors, used for shunting at some of the smaller stations and yards, to producer-gas propulsion, with plant and engine pressure-charged on the Büchi system. The engines are of the six-cylinder 100 b.h.p. FBW make, and the producers are of the Imbert wood-burning pattern.

Croat State Travel Bureau.—In accordance with an agreement between the Croatian State Railways and Croatiaput, the State-owned tourist bureau, the latter receives the following commissions on the sale of tickets available on the State Railways: 3½ per cent. for ordinary (cardboard) tickets for inland journeys; 5 per cent. for coupon tickets for inland journeys; and 7½ per cent. for coupon tickets for journeys abroad. Croatiaput has its headquarters at Zagreb and maintains branches at Osijek and Zemun. Its only foreign branch is in Berlin.

Taltal Railway Co. Ltd.—At the recent annual general meeting, Mr. Charles Hunter Pearson, the Chairman, said that the closure of nitrate *oficinas* in Taltal had curtailed severely traffics, and the railway was working at a considerable loss. At one time the line had served 16 *oficinas*, and in the financial year 1913-14 the volume of traffic handled was 479,000 tons. In the last five years the average was 82,000 tons. At present only one *oficina* was in production and the total traffic so far was at the rate of 40,000 tons a year, which included the temporary transport of dismantled *oficina* materials. In eleven of the last thirteen years, gross receipts of the line had been insufficient to meet the working expenses, despite every effort to secure all possible economies. Mr. J. S. Burns, a director who had been General Manager from 1920 to 1930, and who had expert knowledge of the company's affairs, was now in Chile, ascertaining what means were available for meeting the emergency. The board was awaiting with the greatest anxiety the result of his mission.

Sifbronze Welding Film.—The Suffolk Iron Foundry (1920) Limited has completed a 16 mm. film showing in detail a Sifbronze welding repair to a cast iron tractor gear casing. Copies of this film, which occupies about 15 min. to display, are available on loan, free of charge, from the Suffolk Iron Foundry (1920) Limited, Gipping Works, Stowmarket.

Permanent Way Institution: Winter Meeting.—The sixty-first annual winter meeting of the Permanent Way Institution is to be held at the Institution of Civil Engineers, Great George Street, Westminster, S.W.1, on Saturday, January 20, at 2.30 p.m. The chair will be taken by the President, Mr. V. A. M. Robertson, Chief Civil Engineer, Southern Railway. Afterwards, a lecture will be given by Mr. Arthur Dean, Maintenance Engineer, Southern Railway, on "Production of Ballast on the Southern Railway," illustrated with a film and lantern slides.

Mr. R. C. Vaughan's Year-End Message.—Mr. R. C. Vaughan, Chairman & President of the Canadian National Railways, in a year-end message points out that the system is carrying twice as much freight as in the years before the war, and nearly four times as many passengers. Estimated gross revenues for 1944 of $440,000,000 will be on a level with 1943, but net revenue will be down substantially at $78,000,000, reflecting heavy increases in costs of labour and materials. After payment of interest, there will remain a cash surplus to turn over to the Federal treasury.

Irish Railway Dividends.—The Great Southern Railways of Ireland and the Dublin United Transport Co. Ltd., which have been merged in the new undertaking entitled Coras Iompair Eireann, details of which have already been given in recent issues, have declared their final dividends. The directors of the G.S.R. recommend dividends of 3 per cent. on the ordinary stock and 4 per cent. on the 4 per cent. preference stock for the year to December 31, 1944. A final of 2 per cent. on the guaranteed preference makes a total of 4 per cent. for the year in respect of this stock. The preference and ordinary stock received similar payments for 1943. The D.U.T.C. recommends final dividends of 3 per cent., less tax, on the ordinary and preference stock, which, with the interim dividend paid last August, makes a total of 6 per cent. for 1944 on each stock, the same as for the two previous years.

Suggested Conference on Transport in East Africa.—Major-General Sir Philip E. Mitchell, Governor & Commander-in-Chief of Kenya, recently foreshadowed an inter-territorial conference on the co-ordination of transport in East Africa. He told the Legislative Council that a great deal of preliminary work had been done already, the Governors of Tanganyika and Uganda had agreed that an early conference was desirable. Tentative terms of reference would be to consider the existing organisation and proposed development of transport by rail, road, and air, and by inland and coastal waters, so as to provide the necessary co-ordination and collaboration. Among the main subjects would be proposals for the resumption of civil air services in relation to other forms of transport, and the question of military and naval air installations which it might be desirable to retain for that purpose.

I.C.I. (Plastics) Limited.—At an extraordinary general meeting of the above company, held at Black Fan Road, Welwyn Garden City, Hertfordshire, on December 30, 1944, the following special resolution was passed: "That with a view to the assignment and transfer of the whole of the undertaking, assets and liabilities of the

British and Irish Railway Stocks and Shares

Stocks	Highest 1944	Lowest 1944	Prices Jan. 16, 1945	Prices Rise/Fall
G.W.R.				
Cons. Ord.	62¾	55	60	+ ½
5% Con. Pref. ...	122½	114¾	120½	+ 1
5% Red. Pref. (1950)	110½	104	105	—
5% Rt. Charge ...	135½	128	133½	—
5% Cons. Guar. ...	134⅞	125	133½	—
4% Deb.	118½	112¾	116½	+ ½
4½% Deb.	118½	114	118½	+ 2
4½% Deb.	124½	119½	122½	—
5% Deb.	137	129½	134½	—
2½% Deb.	77	73½	74½	+ 1
L.M.S.R.				
Ord.	34⅜	27⅛	32½	—
4% Pref. (1923) ...	64½	55¾	64½	+ 1
4% Pref.	81	72½	80	+ ½
5% Red. Pref. (1955)	105¾	102	104	+ 1
4% Guar.	107½	99½	105½	+ ½
4% Deb.	111½	104	108	+ ½
5% Red. Deb. (1952)	111	108	108½	—
L.N.E.R.				
5% Pref. Ord. ...	10½	7⅞	8¼	+ ⅛
Def. Ord.	5⅞	3¾	4	—
4% First Pref. ...	63¾	55½	61½	+ ½
4% Second Pref. ...	35⅜	28½	32¾	—
5% Red. Pref. (1955)	102½	97½	101½	—
4% First Guar. ...	105½	96¾	104	+ ½
4% Second Guar. ...	95½	88½	96	+ 2½
3% Deb.	88½	80¾	86	+ ½
4% Deb.	110¾	103½	107½	+ ½
5% Red. Deb. (1947)	105¾	101½	102½	—
4½% Sinking Fund Red. Deb.	107	104½	104½	—
SOUTHERN				
Pref. Ord.	80½	71⅞	79½	+ 1
Def. Ord.	26⅜	23	26½	+ ⅛
5% Pref.	122	113½	119½	+ 1
5% Red. Pref. (1964)	117½	112½	115½	—
5% Guar. Pref. ...	134	125½	133½	+ 1
5% Red. Guar. Pref. (1957)	115¾	112½	115½	+ 1
4% Deb.	118	110	115½	+ ½
5% Deb.	135½	127	133	—
4% Red. Deb. (1962-67)	111½	107½	108½	—
4% Red. Deb. (1970-80)	112	108¾	109½	—
FORTH BRIDGE				
4% Deb.	107	103	105	—
4% Guar.	106½	102	105	—
L.P.T.B.				
4½% "A"	125	119	121½	—
5% "A"	133½	128	132½	+ 1
3% Guar. (1967-72)...	99½	98	99	—
5% "B"	124½	118¾	122½	—
"C"	72¾	64½	69	— ½
MERSEY				
Ord.	35⅜	03	36	+ 1
3% Perp. Pref. ...	72	66	70	—
4% Perp. Deb. ...	105	103	106xd	— 1
3% Perp. Deb. ...	85½	79½	84xd	—
IRELAND*				
BELFAST & C.D.				
Ord.	9	6	8	—
G. NORTHERN				
Ord.	33⅞	19	30½	— 2⅞
Pref.	49	37	48½	— ⅜
Guar.	70	57⅞	70	+ ½
Deb.	90½	81¼	91	+ 2
IRISH TRANSPORT				
Common	—	—	68	+ 2½
3% Deb.	—	—	98⅞	+ 1⅞

*Latest available quotation

OFFICIAL NOTICES

London and North Eastern Railway Company

NOTICE is hereby given that the Directors have fixed January 25th at the close of business as the date for striking the balances of the Company's Guaranteed, Preference and Ordinary Stocks. Final Dividends declared for the year ended 31st December, 1944, will be payable only to the Stockholders whose names are registered in the books of the Company on the date so fixed.

Deeds of Transfer should, therefore, be lodged with the Registrar of the Company at Hamilton Buildings, Liverpool Street Station, London, E.C.2, before 5.0 p.m. on 25th January.

By Order,
W. H. JOHNSON
Secretary of the Company.

Marylebone Station,
London, N.W.1.
15*th January*, 1945.

Overseas Employment

TRAFFIC INSPECTOR required by the Nigerian Government Railway for the duration of the emergency or one tour of 12 to 24 months, whichever is the lesser period, with possible permanency. Salary £400 × £12—£560 a year. On salary of £400 there is a local allowance of £42 and for married men a separation allowance between £84 and £204 according to dependants. Outfit allowance £60. Free passages and quarters. Candidates must have had good all-round training on a Home Railway both on inside and outside work, preferably in both operating and commercial departments and should be able to undertake the inspection, supervision and execution of general railway traffic working.

Applications in writing (no interviews), stating date of birth, full details of qualifications and experience, including present employment; also Identity and National Service or other registration particulars, and quoting reference No. O.S.117, should be addressed to the Ministry of Labour and National Service, Appointments Department, Sardinia Street, Kingsway, London, W.C.2.

DISTRICT MECHANICAL ENGINEERS required by the Iraqi State Railways for 3 years in the first instance. Salary, Iraq Dinars 90 a month, plus high cost of living allowance I.D.24 a month (I.D. 1 = £1). Free passages. The posts are not pensionable but there is a Provident Fund. Candidates should be A.M.I.Mech.E. or possess a degree in engineering and have served a pupilage or apprenticeship in the works of a British Railway or firm of locomotive builders and have subsequently had either (*a*) running experience or (*b*) experience in the manufacture and repair of locomotives. A knowledge of diesel locomotives is desirable.

Applicants should write quoting C.2429A to the Ministry of Labour and National Service, Central (Technical and Scientific) Register, Room 5/17, Sardinia Street, Kingsway, London, W.C.2, for the necessary forms, which should be returned completed on or before the 24th JANUARY, 1945.

company to Imperial Chemical Industries Limited, at the close of business on December 31, 1944, the company be wound up voluntarily, and that Charles Stewart Guthrie, of I.C.I. (Plastics) Limited, Black Fan Road, Welwyn Garden City, Hertfordshire, be and is hereby appointed Liquidator for the purposes of such winding-up."

Tilling Motor Services Limited.—An interim dividend of 3½ per cent. tax free is again being paid on the ordinary shares.

Railway Annual Meeting Dates.—The annual general meeting of the main-line railway companies will be held on the following dates: L.M.S.R. and L.N.E.R., March 2; G.W.R., March 7; S.R., March 8.

London Midland & Scottish Railway Stocks.—A balance of the 4 per cent. guaranteed, 4 per cent. preference, 4 per cent. preference (1923) and ordinary stocks of the L.M.S.R. will be struck at the close of business on Wednesday, January 24.

Craven Bros. (Manchester) Ltd.—Craven Bros. (Manchester) Ltd. has concluded a manufacturing agreement with Walmsleys (Bury) Limited under which it will assist the latter company in the manufacture of its products, which include pulp and paper machinery.

London & North Eastern Railway Company.—The directors have fixed January 25 at the close of business as the date for striking the balances of the guaranteed, preference, and ordinary stocks of the company. Final dividends for the year to December 31, 1944, will be payable only to stockholders whose names are registered by that date. (*See Official Notices above*).

Mr. D. C. Coleman's Year-End Review.—Mr. D. C. Coleman, Chairman & President of the Canadian Pacific Railway Company, in a year-end review states that 1944 has been one of generally sustained activity for the railways of Canada. Canadian business, he declares, will enter the period of re-adjustment in far better shape to deal with it efficiently than was the case a quarter of a century ago. For some time now the C.P.R. has had a special committee of its officers at work formulating plans for the re-establishment and reconstruction period, and its deliberations have covered a wide range of activities. Large-scale maintenance projects and improvements on tracks and bridges, some line construction, and improvements in ships, engine houses and other plants, and in passenger stations are under study. The programme of work outlined, Mr. Coleman states, represents the expenditure of large sums of money. It is the company's expectation that the cost of these projects can be met out of reserves for such purposes, earnings and, where necessary, judicious financing.

Cordoba Central Trust.—On January 11 a resolution was passed by the holders of the 3½ per cent. first debenture stock, agreeing to waive their right to attend at general meetings and to appoint directors.

British Trade with China.—Dr. Wellington Koo, Chinese Ambassador, at a luncheon given by a group of British industrialists in London recently, said he was confident that British trade and capital would find post-war China a safe, attractive, and fruitful field of enterprise.

Collision near Belfast.—Twenty-one persons (including three who died later) are reported to have been killed, and more than 40 injured, as the result of a collision which occurred shortly before 8 a.m. on January 10 on the Belfast & County Down Railway, when the 7.10 a.m. workmen's train from Bangor to Belfast, which had stopped outside Ballymacarrett Junction, about half-a-mile from the Belfast terminus, was run into by the 7.40 a.m. motor-train coming into the city from Holywood, and travelling, it is stated, at not more than 10 m.p.h. The guard of the Bangor train, Mr. James Hewitt, although badly cut about the face, jumped from the wreckage, ran along the track, and placed detonators on the line, which halted another train from Bangor before it reached the scene. Visibility was poor, and it is reported that there was fog over Belfast Lough, close to which the line runs.

Machinery Licensing Changes.—Hitherto any person wishing to acquire plant, machinery or appliances has had to obtain a licence from the Board of Trade, but under a new Order of the Board, effective from January 15, this system has been changed. In future, the manufacturer will be granted the licence, and, where possible, it will be a bulk licence to supply, up to a given amount, whatever customers he wishes in the home market. In addition to this first step in the return to "bulk" licensing, the Order provides that reconditioning no longer is to be considered as "manufacture," and that parts for reconditioning, as well as parts for repair, are now exempt from control. Forms for application by manufacturers of controlled machinery for licences to supply may be obtained from the Industrial Supplies Department, Machinery Licences Division, Board of Trade, 1-6, Tavistock Square, W.C.1. Such manufacturers who wish to bring to the Board's notice increases in production capacity should write to the Industrial Supplies Department, Board of Trade, Millbank, S.W.1. Copies of the Order, the Machinery, Plant & Appliances (Control) (No. 9) Order, 1945 (S.R. & O. 1945, No. 6), are obtainable, price 1d., through any bookseller or newsagent, or direct from H.M. Stationery Office, Kingsway, W.C.2.

Public Utility Undertakings Accounts.—The Minister of War Transport has made an order (S.R. & O. 1944, No. 1449) under which various earlier Directions and Orders, imposing restrictions on the publication of the accounts of certain public utility undertakings concerned with transport services, will cease to have effect, except in relation to a limited number of undertakings. In their case, the restrictions have been modified so as to allow publication after the expiration of six months from the end of the year to which the accounts relate. The new Order will come into force on February 1, 1945.

Contracts and Tenders

The name of Stephenson Clarke & Associated Companies Limited has been changed to Stephenson Clarke Limited.

David Brown & Sons (Huddersfield) Limited announces that Mr. J. A. Brown, who was Area Office Manager in Scotland & Northern Ireland for fourteen years before the war, has now resumed that position at 29, St. Vincent Place, Glasgow, C.1. Mr. R. E. Wardlaw, who has been officiating in Mr. Brown's absence, will continue in his capacity as Sales Engineer.

Forthcoming Meetings

January 25 (*Thu.*).—The Institution of Locomotive Engineers. A general meeting will be held at the Hall of the Institution of Mechanical Engineers, Storey's Gate, London, S.W.1. 5.30 p.m. "The mechanical design of the latest Class 'F' High-Speed Electric Locomotives of the Swedish State Railways," by Mr. H. G. McClean, Member.

January 26 (*Fri.*).—The Institution of Mechanical Engineers, Storey's Gate, St. James's Park, S.W.1. The seventeenth Thomas Lowe Gray Lecture: "Mechanical Engineering in the Shipyard," by Mr. J. Foster Petree, M.I.Mech.E.

Railway Stock Market

Although still only moderately active, stock markets have continued to show a good tone under the lead of steady investment demand for British Funds and leading industrial shares, which have also again moved higher in price. Another feature was a widespread improvement in shares of companies with Far Eastern interests, sentiment reflecting the war news from Burma and the Philippines. The outstanding movement in railway securities was marking up of Assam Railways & Trading "A" stock from 106½ to 125 after the offer of £1,770,000 for the railway undertaking received from the Indian Government. This stock ranks for 8 per cent. cumulative; the market is assuming that the arrears, dating from June, 1932, are likely to be paid, and that eventually there may be a rearrangement of capital, or possibly the formation of a new company to take over the remaining non-railway interests, with holders of the existing "A" and "B" stocks offered exchange into securities of the new concern.

Home rails have been steady, with prior-charges and senior preference stocks tending to move higher in response to the further gains in gilt-edged and the upward tendency in front-rank investments generally. Argentine rails were inclined lower in the absence of demand, and United of Havana 1906 debentures moved back on the results and the disposition to await the scheme of capital reorganisation, the terms of which will have an important bearing on the value of the debenture stocks. French railway sterling bonds have rallied; sentiment has reflected the war news. Canadian Pacifics have again shown response to the possibility of a further dividend payment for the year. Elsewhere, San Paulo lost part of its recent rise.

Comparison of junior home rail stocks shows that Southern deferred yields only slightly more than the 7½ per cent. on Great Western ordinary, despite the much better dividend record of the latter in pre-war years. Southern deferred is, of course, the smallest-priced home railway stock in the dividend list, and as such tends to attract attention as a means of participating in the general trend of home rails. Moreover, in view of the large passenger-carrying interests of the railway, the assumption in the market is that the post-war outlook of the company may be more assured as to traffics than the other lines, and the Southern may benefit most from the eventual reopening of normal trade and travel with the Continent. On the other hand, it has to be borne in mind that considerations such as these will not affect the position of the Southern while the control agreement is in operation; the rental under the latter is fixed, and there can be very little variation in dividends. Moreover, taking the long view, the outlook of the home railways, whatever the post-war settlement, will turn on the success achieved in securing maximum employment of the country's resources and labour power after the war.

Compared with a week ago, Great Western strengthened from 59¾ to 60; the 5 per cent. preference at 120 was also fractionally higher, as were the 4 per cent. debentures at 116½. L.M.S.R. at 32½ was maintained on balance, and the 4 per cent. guaranteed was 105; the senior preference improved from 79 to 80¼, and the 1923 preference from 63¾ to 64⅜. L.N.E.R. first guaranteed was 104, with the second guaranteed higher at 96, compared with 94, the first preference 61¾, compared with 61, and the second preference at 32¾ unchanged on balance. Southern deferred at 26⅛ was the same as a week ago; the preferred further improved from 78½ to 79, and the 5 per cent. preference was a point up at 119½ and the 4 per cent. debentures gained half-a-point at 115½. London Transport "C" improved from 69 to 69½.

Where changed, Argentine rails showed declines of up to two points among the debentures, but there was very little selling. Elsewhere, San Paulo reacted from 60 to 58 and United of Havana 1906 debentures from 29 to 26¾. Among French rails, Nords rallied from 98½ to 99¼. Canadian Pacifics were 15½, compared with 15¼ a week ago.

AFTER-CHRISTMAS PAPER SALVAGE.—The Waste Paper Recovery Association points out that this season offers exceptional opportunities for the salvage of paper. Besides all the wrappings for gifts, Christmas cards, and letters of thanks, there are diaries and calendars now out of date. All these articles represent admirable raw material for the making of jettison tanks for fighting aircraft. Each consumes 60 lb. of paper, and the American Air Force alone needs 24,000 every month. They are suitable also for the wallboards which are being used for the repair of blitzed houses, of which it is estimated that 200,000,000 sq. ft. will be needed, using 15,000 tons of waste paper.

Traffic Table and Stock Prices of Overseas and Foreign Railways

	Railways	Miles open	Week ended	Traffic for week: Total this year	Traffic for week: Inc. or dec. compared with 1942/3	No. of Weeks	Aggregate traffics to date: Totals 1943/4	Aggregate traffics to date: Totals 1942/3	Aggregate traffics to date: Increase or decrease	Shares or stock	Prices: Highest 1944	Prices: Lowest 1944	Prices: January 16, 1945	Prices: Yield % (See Notes)
				£	£		£	£	£					
South & Central America	Antofagasta (Chili) & Bolivia	834	7.1.45	27,370	– 1,360	1	27,370	30,770	– 3,400	Ord. Stk.	13½	9½	10½	Nil
	Argentine North Eastern ...	753	6.1.45	18,706	+ 2,900	27	532,613	436,260	+ 96,353	"	6½	4½	6	Nil
	Bolivar	174	Dec., 1944	5,945	+ 1,169	52	63,997	62,732	+ 1,265	6 p.c. Deb.	18½	7½	7½	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds	19⅞	15	18	Nil
	Buenos Ayres & Pacific ...	2,773	6.1.45	146,933	+ 14,933	27	3,636,066	2,962,666	+ 673,400	Ord. Stk.	7½	3½	5½	Nil
	Buenos Ayres Great Southern	5,080	6.1.45	298,333	+ 76,600	27	5,433,733	4,993,266	+ 440,467	Ord. Stk.	14½	9½	11½	Nil
	Buenos Ayres Western ...	1,924	6.1.45	75,066	+ 16,400	27	2,005,666	1,595,933	+ 409,733	"	13½	9½	10½	Nil
	Central Argentine	3,700	6.1.45	204,573	+ 29,007	27	5,118,150	4,390,693	+ 727,457	"	10½	6½	8½	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	4½	3	5	Nil
	Cent. Uruguay of M. Video	972	6.1.45	35,709	+ 4,929	27	879,130	919,422	– 40,292	Ord. Stk.	5½	4	4½	Nil
	Costa Rica	262	Nov., 1944	13,310	– 6,583	21	111,223	114,386	– 3,163	Stk.	17½	14½	16	Nil
	Dorada	70	Nov., 1944	29,500	+ 4,500	47	294,943	243,607	+ 51,336	1 Mt. Deb.	101	101	98½	£6 1/
	Entre Rios	808	6.1.45	26,420	+ 1,680	27	704,506	608,380	+ 96,126	Ord. Stk.	6½	4½	4½	Nil
	Great Western of Brazil ...	1,030	6.1.45	22,500	– 1,000	1	22,500	23,500	– 1,000	Ord. Sh.	38/–	23/3	30/–	Nil
	International of Cl. Amer. ...	794	Nov., 1944	$546,534	– $18,900	47	$6,827,493	$6,589,280	+ $238,213	—	—	—	—	—
	Interoceanic of Mexico ...	—	—	—	—	—	—	—	—	1st Pref.	1¾	½	1	Nil
	La Guaira & Caracas... ...	22¾	Dec., 1944	6,522	– 463	52	90,117	97,885	– 7,768	5 p.c. Deb.	88	79	79½	£6 5/
	Leopoldina	1,918	30.12.44	51,427	+ 5,196	52	2,443,963	1,904,309	+ 539,654	Ord. Stk.	5⅞	4½	4½	Nil
	Mexican	483	7.1.45	ps. 469,600	+ ps.98,900	1	ps. 469,600	ps. 370,700	+ ps. 98,900	Ord. Stk.	¾	½	⅜	Nil
	Midland Uruguay	319	Nov., 1944	16,470	– 2,113	21	83,491	84,450	– 959	—	—	—	—	—
	Nitrate	382	31.12.44	8,356	+ 1,607	52	185,304	160,692	+ 24,612	Ord. Sh.	75/10	65/10	70/–	£3 11
	Paraguay Central	274	5.1.45	$61,714	+ $20,020	27	$1,640,546	$1,463,331	+ $177,215	Pr. Li. Stk.	79½	68	77	£7 16
	Peruvian Corporation ...	1,059	Dec., 1944	133,173	+ 17,641	26	769,298	637,187	+ 132,111	Pref.	9	10	8	Nil
	Salvador	100	Nov., 1944	c87,000	– c 7,000	21	c 410,000	c 429,000	– c 19,000	—	—	—	—	—
	San Paulo	153½	—	—	—	—	—	—	—	Ord. Stk.	57½	46	63½	£3 2/
	Taltal	156	Dec., 1944	2,390	– 5,335	26	15,165	35,225	– 20,060	Ord. Sh.	21/3	13/9	12/6	Nil
	United of Havana	1,301	6.1.1945	51,307	+ 10,258	27	1,290,168	1,267,500	+ 22,668	Ord. Stk.	4	2½	3	Nil
	Uruguay Northern	73	Nov., 1944	1,608	+ 34	21	7,291	7,130	+ 161	—	—	—	—	—
Canada	Canadian Pacific	17,028	7.1.45	904,600	– 56,000	1	904,600	960,600	– 56,000	Ord. Stk.	17¾	13 13/16	15½	6 7/
India†	Barsi Light	202	Dec., 1944	17,475	– 570	39	203,107	191,332	+ 11,775	Ord. Stk.	129½	97½	127½	£3 10
Various	Egyptian Delta	607	20.12.44	23,057	+ 2,113	36	504,757	417,328	+ 87,429	Prf. Sh.	7 13/16	5¼	7	Nil
	Manila	—	—	—	—	—	—	—	—	B. Deb.	63½	58	60	Nil
	Midland of W. Australia ...	277	Nov., 1944	18,036	– 12,078	21	101,006	165,804	– 64,798	Inc. Deb.	101½	99½	98½	£4 1/
	Nigerian	1,900	30.9.44	286,839	– 39,236	4	—	—	—	—	—	—	—	—
	South Africa	13,301	2.12.44	1,042,870	+ 106,952	35	31,745,139	29,237,519	+ 2,507,620	—	—	—	—	—
	Victoria	4,774	April, 1944	1,188,999	– 212,162	—	—	—	—	—	—	—	—	—

Note. Yields are based on the approximate current price and are within a fraction of ⅛. Argentine traffics are given in sterling calculated @ 15 pesos to the £
† Receipts are calculated @ 1s. 6d. to the rupee